

# EXHIBIT A

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

GRACO INC. and GRACO MINNESOTA  
INC.,

Plaintiffs,

v.

CARLISLE CONSTRUCTION  
MATERIALS, LLC,

Defendant.

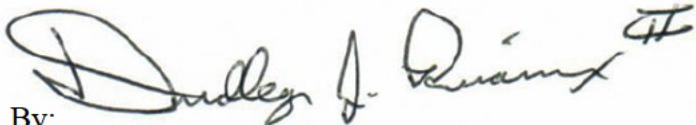
C.A. No. 21-245-JLH-SRF

**DEMAND FOR JURY TRIAL**

[REDACTED]

**REBUTTAL EXPERT REPORT AND DISCLOSURE OF DUDLEY J. PRIMEAUX, II**

Dated: March 26, 2024

By:   
Dudley J. Primeaux, II

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## I. INTRODUCTION

1. My name is Dudley Joseph Primeaux II. I have been retained by Plaintiffs Graco Inc. and Graco Minnesota, Inc. (collectively, “Graco” or “Plaintiffs”) as an independent expert in this action. I expect to testify concerning the subjects outlined in this report.

2. As part of my engagement, I have been asked to respond to the report of Dr. David Rockstraw regarding U.S. Patent No. 7,527,172 (the “’172 patent”), the state of the art at the priority date of the ’172 patent, and technical aspects of the prosecution of the ’172 patent.

3. I am being compensated at my normal hourly rate of \$150 for each hour of work outside of trial testimony and \$200 for each hour of trial testimony. My compensation is not affected by the outcome of this case. I own no shares, nor do I have any other ownership interest in Graco. Furthermore, I have no financial ties to Graco, and I will not financially benefit from any outcome in this case beyond my hourly fee.

4. This report is a description of the testimony I expect to offer. However, I reserve the right to modify or supplement my opinions, as well as the basis for my opinions, based on the nature and content of the documentation, data, proof, and other evidence or testimony that Carlisle or its experts, or any other witnesses may present, or based on any additional discovery, amendments by Carlisle, or other information provided to me or found by me in connection with this matter. My current opinions and the bases for them are set forth in this report.

5. In forming my opinions, I have considered, in addition to my own education, training, research, knowledge, and personal and professional experience: (a) the documents and things listed in Exhibit 1 to this report; and (b) any other materials referred to or cited in this report. Particularly, this report is based on my review of the Asserted Patent, the prior art, parts of the records and documents produced and made available for inspection in this case to date, and the Court’s claim constructions. I am prepared to use and rely upon any or all these

materials, other materials that may be produced during the course of this proceeding, as well as supplemental charts, models, demonstrative exhibits, and other representations based on those documents to support my testimony at trial or in deposition.

6. All the opinions stated in this report are based on my own personal knowledge, experience, and professional judgment. If called as a witness during the trial in this matter, I am prepared to testify competently about them.

7. I reserve the right to update, supplement, or amend this report in view of additional information obtained through discovery that affects the opinions set forth in this report, including expert discovery, or other information that may become available.

## **II. BACKGROUND AND QUALIFICATIONS**

8. I incorporate by reference the discussion of my background and qualifications found in my Opening Expert Report served February 21, 2024.

## **III. SUMMARY OF OPINIONS**

9. If called as a witness, I expect to provide the opinions contained in this report regarding the level of ordinary skill in the art, the state of the art at the time of the invention, invalidity, and materiality to prosecution. In summary, I expect to testify that claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 of U.S. Patent No. 7,527,172 are not anticipated, obvious, invalid for lack of definiteness, or invalid for lack of written description support. I also expect to testify that Probler was cumulative of prior art before the patent office during prosecution and/or not material to the prosecution of the '172 patent claims.

10. I understand that Dr. Rockstraw opines on the below prior art bases for invalidity. It is my opinion that none of these bases render the claims of the '172 patent obvious.

Reference	Bases
Probst	<ul style="list-style-type: none"><li>• Single reference obviousness</li><li>• Obvious in view of the state of the art</li><li>• Obvious in view of Probler</li></ul>
Probler	<ul style="list-style-type: none"><li>• Anticipation</li><li>• Single reference obviousness</li><li>• Obvious in view of Probst</li><li>• Obvious in view of state of the art</li><li>• Obvious in view of GAP</li></ul>
Zittel	<ul style="list-style-type: none"><li>• Single reference obviousness</li><li>• Obvious in view of Fusion</li><li>• Obvious in view of state of the art</li></ul>
Fusion	<ul style="list-style-type: none"><li>• Anticipation</li><li>• Single reference obviousness</li><li>• Obvious in view of Zittel</li><li>• Obvious in view of state of the art</li></ul>
GAP	<ul style="list-style-type: none"><li>• Anticipation</li><li>• Single reference obviousness</li><li>• Obvious in view of state of the art</li><li>• Obvious in view of Probler</li></ul>

Rockstraw Op. Rpt. ¶ 7.

#### IV. LEGAL BASIS FOR OPINIONS

11. I am not a legal expert and offer no opinions on the law. However, I have been informed by counsel of the legal standards that apply with respect to claim construction and patent validity, which I have used in arriving at my conclusions.

**A. Claim Construction**

12. I have been informed that claim construction is a matter of law. I am informed that terms in patent claims must be construed as a first step in analyzing whether a claim is infringed.

13. I have also been informed that claims of a patent are construed consistent with the “intrinsic evidence” as it would be understood by a person of ordinary skill in the art at the time of the invention. “Intrinsic evidence” includes the language of the claim itself, the specification of the patent, other claims of the patent, and in view of representations made by the applicant to the Patent Office during prosecution of the patent application, as well as prosecution of other patent applications “related” to the patent, such as parent or children patent applications. I am also informed that other evidence (such as dictionaries, technical references, and articles) not in the intrinsic written record, and referred to as “extrinsic evidence,” may also be considered if it is consistent with (not contradictory to) the intrinsic evidence.

14. I understand that a claim in “dependent form” contains a reference to a claim previously set forth and must specify a further limitation of the subject matter claimed. I am informed that a claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

15. I further understand that for claims written in the “Jepson” format the preamble contains structures known in the art and the body of the claim after “the improvement wherein” contains the elements of the claim the applicant considered to be new or improved. I understand that the preamble to a Jepson claim are limitations of the claim.

16. I further understand that the body of a Jepson style claim must be read as whole, because it is the combination of claimed elements that are claimed as the improvement. I

understand that there is no requirement that each element of a Jepson-style claim individually be an improvement and it is improper to view such elements in isolation.

**B. Presumption of Validity**

17. I have been informed that a patent is to be presumed valid, and a party challenging validity must show that a patent is invalid by clear and convincing evidence. I also understand that clear and convincing evidence is such evidence that causes the trier of fact to be persuaded that the fact sought to be proved is substantially more likely than not to be true. I understand that proving a fact by “clear and convincing” evidence is a higher burden than proving a fact by a “preponderance of the evidence,” but is lower than “beyond a reasonable doubt.”

18. I understand that USPTO Examiners are assumed to have expertise in interpreting the prior art and to be familiar with the level of skill in the art. I further understand that Examiners, as persons of scientific competence in the fields in which they work, are informed by their scientific knowledge as to the meaning of prior art references to persons of ordinary skill in the art and the likely motivation of such persons as influenced by prior art references or by the typical training of a person with ordinary skill in the art.

**C. Independent and Dependent Claims**

19. I have been informed that if an independent claim is found valid, every claim that depends from the independent claim is also valid. I have also been informed that if an independent claim is found to be invalid, the claims which depend from it may still be found to be valid.

**D. Anticipation**

20. I understand that to be valid, a patent claim must be non-obvious and novel. I also understand that a patent claim is not novel if it is anticipated by a single prior art reference –

that is, a single prior art reference discloses each and every element of the claim either expressly or inherently. I understand that a single document can also incorporate by reference certain information from another document in the limited situation where the first document clearly identifies the subject matter which is incorporated and where it is to be found. I understand that a mere reference to another application, patent, or publication is not an incorporation of anything therein. I also understand that a single reference cannot merely disclose each element of a claim to be found to anticipate. Rather, it must disclose all the elements as arranged in the claim. I further understand that for a reference to “inherently” disclose something, the missing descriptive matter must necessarily be present in the reference, not merely probably or possibly present, and that it would be so recognized by a person of ordinary skill. I understand that if an element of the claim is not disclosed by a prior art reference, then the claim is not anticipated by that reference.

**E. Obviousness**

21. I understand that to find a patent invalid for obviousness, Carlisle must prove that the differences between the claimed invention and the prior art taken as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made.

22. I have been informed that to render a claim obvious, a combination of prior art references must disclose each and every claim element of that claim, and that obviousness is a question of law based on the underlying facts. I understand that the underlying factual inquiries are: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) objective indicia of nonobviousness.

23. I am also informed that the fact that all the elements of a claimed invention can be found separately in more than one prior art reference is not sufficient to show that a claimed

invention is obvious. There must be a reason why it would have been obvious to one of skill in the art to modify the prior art to arrive at the claimed invention. I understand that a helpful insight into this determination is whether there is a teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the elements. When there is no suggestion in the art or common knowledge of one of skill in the art for the proposed combination, or when the prior art suggests something other than the combination, a finding of obviousness is generally not warranted.

24. I understand Defendant/Dr. Rockstraw must show that there was a reason or motivation to combine the prior art references to arrive at the claimed invention. Conclusory assertions that a combination of prior art would have been “common sense” or “intuitive” are insufficient to support a finding of a motivation to combine. I further understand Defendant/Dr. Rockstraw must show there was a reasonable expectation of success in combining the prior art references to achieve the claimed invention. I understand that Defendant/Dr. Rockstraw must present specific reasons why the patent elements would have been combined, because inventions in many instances rely upon building blocks long since uncovered and discoveries almost of necessity will be combinations of what, in some sense, is already known.

25. I understand that the obviousness analysis should not be framed as an inquiry into whether a person of skill, with only the references in Defendant's/Dr. Rockstraw's proposed combinations sitting in front of him or her, would have been motivated to combine those references in a way that renders the claimed invention obvious. Instead, the question is whether that skilled artisan would have been motivated to select the specific references in Defendant's/Dr. Rockstraw's proposed combinations out of the sea of prior art to combine their

elements in such a way that would address a particular need present and appreciated in the field at that time.

26. I understand that considering the claimed subject matter as a whole is an important aspect of an obviousness analysis, and that it is improper to consider the invention as only the differences between the claimed invention and the prior art. I understand that distilling an invention down to the “gist” or “thrust” or advantages disregards the requirement of analyzing the subject matter as a whole. In addition, a patent claim composed of several elements or steps is not proved obvious merely by demonstrating that each of its steps was, independently, known in the prior art.

27. I understand that the prior art must be considered in its entirety, including disclosures that teach away from the claimed invention. Furthermore, if a proposed modification to a prior art reference would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

28. I understand that the obviousness inquiry takes place at the time of the invention. Therefore, the use of hindsight in an obviousness analysis is impermissible. I further understand that, in making a determination as to whether or not the claimed invention would have been obvious to a person of ordinary skill, the fact finder must consider certain objective factors, such as unexpected results, copying, and praise by others in the field. The presence of such factors – known as “objective indicia of non-obviousness” – is evidence of non-obviousness. Objective indicia are an important consideration to guard as a check against hindsight bias. I also understand that a connection, or nexus, must exist between the objective indicia and the claimed invention.

**F. Written Description**

29. I understand that to be valid claims must meet the written description requirement. To meet the written description requirement, I understand that the patent specification must convey to a skilled artisan with reasonable clarity that the inventor had “possession” of the invention. In other words, the patent specification must convey to a skilled artisan with reasonable clarity that the inventor actually invented the invention claimed. I further understand that the disclosure need not provide verbatim support for the claimed subject matter at issue, and that the claimed invention should not be limited to the specific examples or preferred embodiments in the written description. I understand that whether the inventor has shown “possession” depends on the nature and scope of the claims, the complexity of the relevant technology, the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, and the predictability of the aspect at issue.

**G. Definiteness**

30. I understand that a patent claim is definite if it “particularly points out and distinctly claims the subject matter which the inventor or a joint inventor regards as the invention.” 35 U.S.C. §112 ¶ 2. I also understand that to meet this standard a claim, viewed in light of the specification and prosecution history, must inform those skilled in the art about the scope of the claim with reasonable certainty. I understand that reasonable certainty does not require absolute precision.

**H. Materiality to Patent Prosecution**

31. I understand that 37 C.F.R. § 1.56 sets forth the duty to disclose information “material to patentability.” I understand § 1.56 defines “material to patentability” as follows: [N]ot cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in
  - (i) Opposing an argument of unpatentability relied on by the Office, or
  - (ii) Asserting an argument of patentability.

32. I further understand that § 1.56(b) defines the phrase “*prima facie* case of unpatentability” as:

[E]stablished when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

33. I also understand that, as a general matter, the materiality required to establish inequitable conduct in patent prosecution is “but-for” materiality. A reference is “but-for” material if the Patent Office would not have allowed a claim if it had been aware of the reference.

## V. STATE OF THE ART

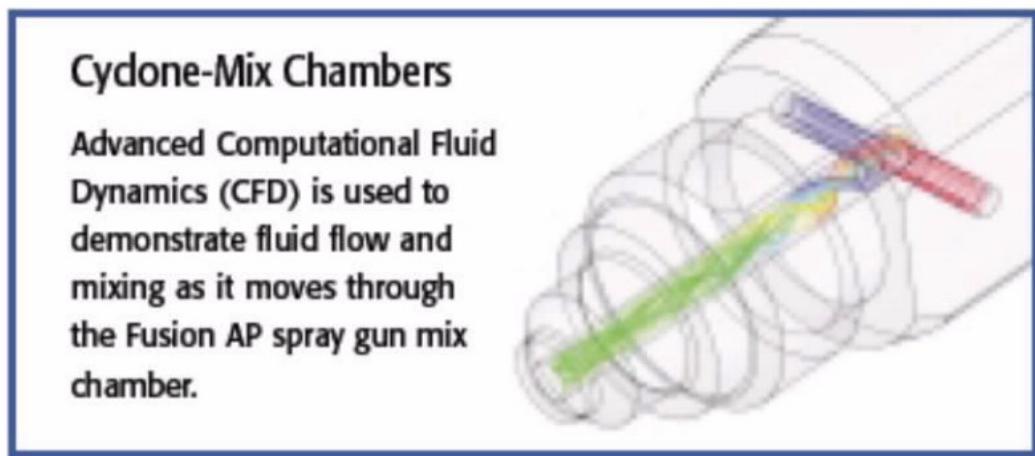
34. I incorporate by reference my discussion of the background of the technology at issue in this case contained in my opening expert report served February 21, 2024.

35. I disagree with Dr. Rockstraw in his suggestion (at ¶ 52) that a 1969 NASA Technical Memorandum (CCM\_00013959) evidences the state of the art at the time of patent filing in 2004. As seen on pages 12-17 of the Memorandum, the equipment considered is dramatically different from the state of the art at that time. (CCM\_00013959 at CCM\_00013970-75). The GlasCraft Sidewinder (CCM\_00013973) and the Binks 43P (CCM\_00013975), for example, both appear to be a solvent purge gun.

36. Dr. Rockstraw is mistaken in his assessment (at ¶ 57) that two-part mixing chambers were known in the industry prior to the ’172 patent. I was working in the industry in

2004 at the time of the invention, and at the time that Glascraft introduced in the P2 air purge gun. The first time I ever encountered a two-part mixing chamber in an unobstructed air purge gun was with the introduction of the P2. Unobstructed air purge guns on the market that I was aware of prior to that time all had a single-part mixing chamber.

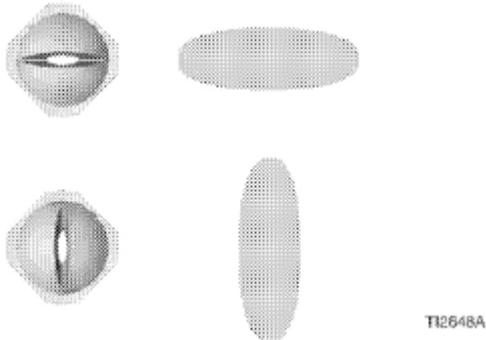
37. Contrary to Dr. Rockstraw's view, there is only a single mixing chamber depicted in the image of the Fusion mixing chamber below, continuing from the intersection with the admission passages:



(CCM\_00013459 at CCM\_00013461). He also appears to conflate optional spray tip attachments available to affix to the front Fusion and Probler mixing chambers with a mixing chamber that is itself two-parts. (*See* CCM\_00013459, CCM\_00014096). A person of ordinary skill in the art at the time of the invention understood that such optional tips were not part of the mixing chamber.

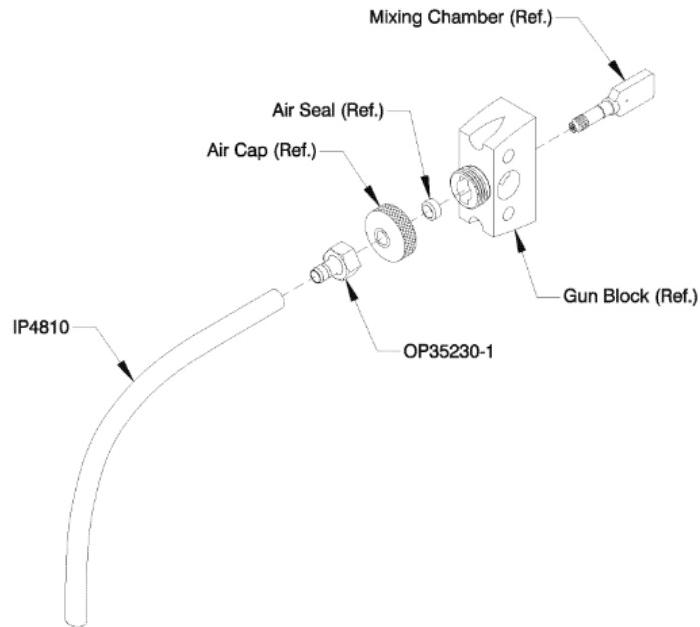
38. At the time of the invention, commercially available air purge guns were compatible with a variety of pattern augmentation tips that could optionally be affixed to the front of the guns' mixing chambers. These additions allowed contractors to modify the spray pattern or fluid flow to fit particular applications.

- *Flat Spray Tips.* Flat spray tips, which are small metal caps placed over the front of the mixing chamber, could be added to a mixing chamber to change the spray pattern from the typical round spray pattern to an oblong or fan. The tip itself include an oblong hole the reshapes the spray. An example of the shape of the tip and resulting pattern are shown in the Fusion manual reproduce below.



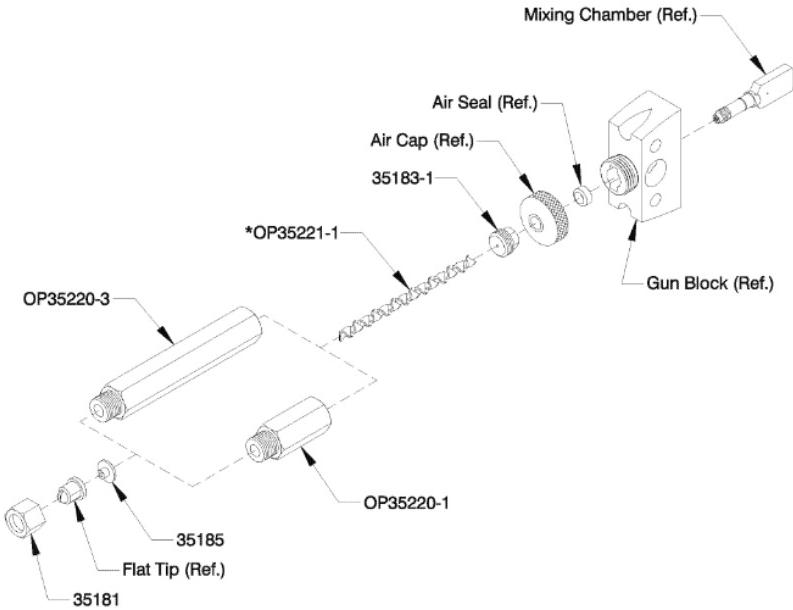
GRACO\_0007952 at GRACO\_0007967. The oblong shape of the tip allowed contractors to more easily apply foam or polyurea in an aesthetically pleasing manner. The material could be applied to a surface with repeated, consistent passes to get a consistent layer. Additionally, flat spray tips could be used by contractors to augment the spray pattern to more precisely fit between wall studs in unfinished spaces.

- *Pour Tips.* Pour tips are longer tubing that could be fitted to the front of a mixing chamber with an adapter. These tips converted the turbulent flow of the mixing chamber to more laminar flow and allowed contractors to pour mixed plural component materials into defined spaces, such as into a wall through a hole. The adapter and tubing of the GAP gun, copied below, is one example of this type of configuration.



CCM\_00012694 at CCM\_00012708.

- *Static Mixer Tips.* Static mixer tips were available to add to at least the GAP at the time of the invention. Static mixers use an obstruction to ensure a thorough mix of components, usually in the form of a corkscrew or similar element. Static mixer tips are generally used with slower reacting plural component materials and are not typically used with polyurea or foam. For example, static mixers can be used by contractors applied in a slower set coating systems, such as polyaspartic or solvanted urethane coatings, i.e., coatings used on metal substrates or decorative topcoats. An example of a static mixer tip for the GAP gun is reproduced below.



CCM\_00012694 at CCM\_00012707.

- *Extension tips.* Extension tips were additions to the front of a mixing chamber that allowed contractors to spray foam on a substrate physically distant from the gun by forcing fluid through a smaller hole to increase pressure. Fusion extension tips are one example. *See, e.g., GRACO\_0007952 at GRACO\_0007988.* Extension tips resulted in a less desirable spray pattern but could be useful, for example, when spraying in an unfinished attic where the contractor could not directly access the entire space.

A person of skill in the art at the time of the invention understood that each of the above-described tips, as well as other specialty tips, were not themselves part of the mixing chamber.

39. And, again, Dr. Rockstraw's reference (at ¶ 57) to a 1969 test report misses the mark entirely as the "nozzles" described therein are entirely different from products available in 2004 and from the two-part mixing chamber claimed in the '172 patent.

40. I disagree with Dr. Rockstraw's characterization (at ¶¶ 65-66) of the Probler 2 as a mere "refresh" of the Probler. The Probler 2 had many important improvements over the original Probler gun including: the introduction of a two-part mixing chamber, lighter weight,

and introduction of second filter screen for both sides of the system (iso and poly). The Probler 2 also had an improved air piston that increased response time compared to the original Probler.

41. A person of skill in the art at the time of the invention would have been familiar with basic geometry. Principles that such a person would understand include that the diameter of a circle is twice its radius and that the formula for the area of a circle is  $A = \pi r^2$ , where “r” is the radius and  $\pi$  is a transcendental number often expressed to four decimal places as 3.1416.

## VI. OVERVIEW OF THE PRIOR ART

### A. Probst

42. United States Patent No. 3,799,403 (Probst), titled “Plural Component Dispensing Device and Method,” issued on March 26, 1974 to Richard O. Probst and Albert H. Moos. (CCM\_00004338).

43. I understand that Probst was disclosed to the United States Patent and Trademark Office during the prosecution of the ’172 patent and that the patent examiner is presumed to have been aware of it.

44. Probst discloses a plural component gun with a one-part mixing chamber 87, as shown in the below annotated image.

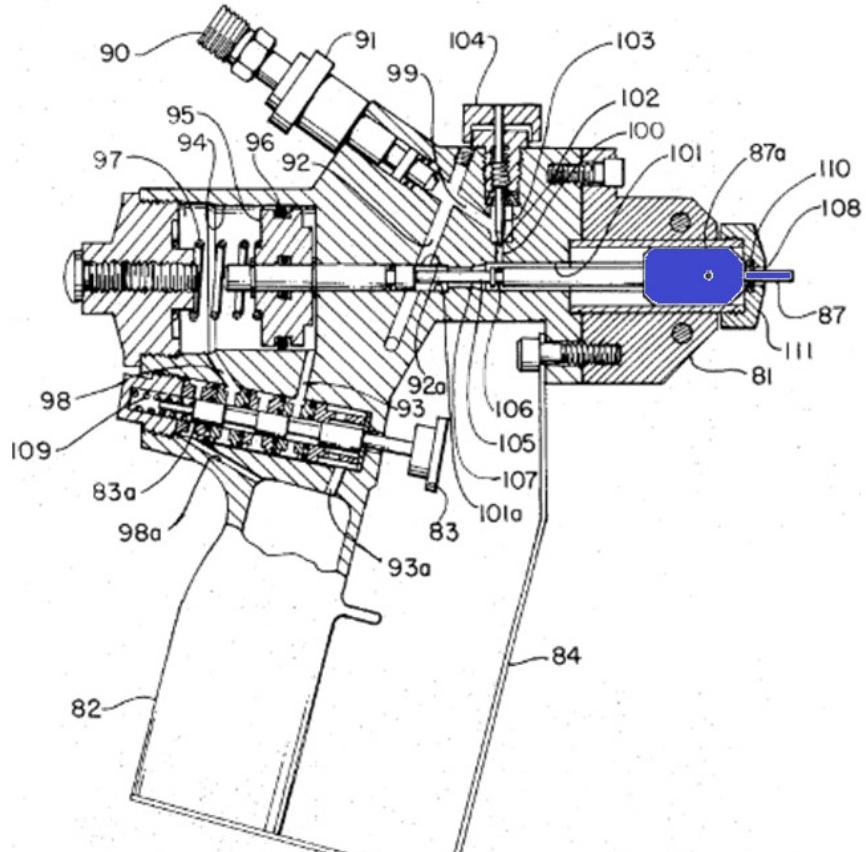


Fig. 6

Probst at Fig. 6 (annotated).

45. Probst's one part mixing chamber 41 has a single, consistent size throughout as shown in Figures 3 and 4, annotated below.

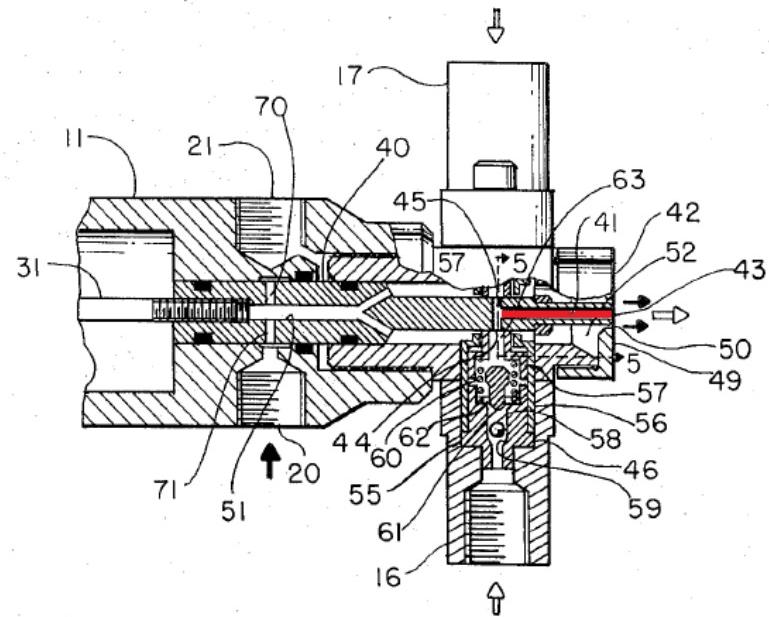


Fig. 3

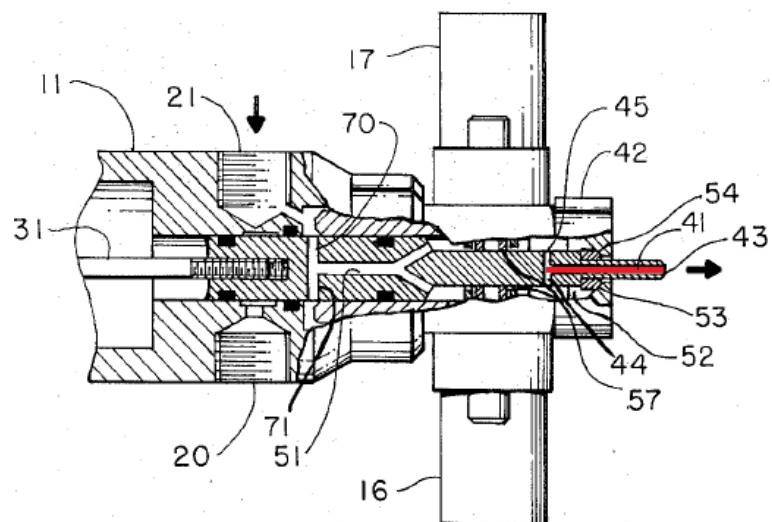
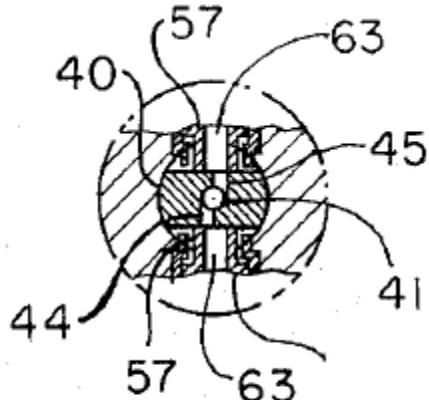


Fig. 4

46. Probst further discloses admission passages 44 and 45 intersecting mixing chamber 41 tangentially (Probst 5:59-6:7), as depicted in Figure 5.



*Fig. 5*

47. Probst further explains that the cross-section dimensions of its mixing chamber and orifice are substantially the same. Probst at 5:44-48; *see also* Probst 9:38-42 (explaining mixing chamber of Figures 6 and 7 are formed the same as Figures 3 through 5).

48. Though, as Dr. Rockstraw points out at ¶ 93, Probst states that certain dimensions may be modified, it provides no teachings or guidance as to different dimensions that would result in effectively mixed foam. Probst at 5:44-58 (“It may well be that under certain operating circumstances, a more advantageous spray or pour pattern is realized when orifice 43 has a cross sectional configuration different from that of the mixing chamber 41”). A person of skill in the art would not understand such general guidance as an instruction to augment dimensions and would not have been motivated to do so based on such generic statements.

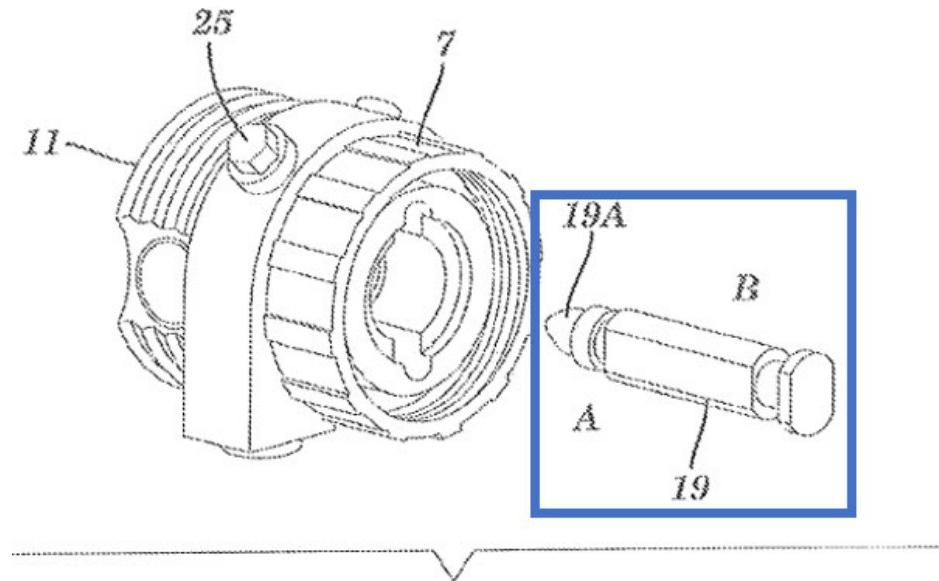
49. The Probst patent describes the Probler gun, which was the first air purge spray foam gun of its kind on the market, as far as I am aware.

#### **B. Zittel**

50. United States Patent No. 7,694,893 (Zittel), titled “Plural Component Spray Gun for Fast Setting Materials,” issued on April 13, 2010, to Douglas P. Zittel, Michael J. Sebion,

Richard D. Anderson, Peter L. Linder, Christopher J. Pellin, Mark T. Weinberger, and Mark C. Richler. GRACO\_0000012. The patent was assigned to Graco Minnesota Inc. *Id.*

51. Zittel discloses a plural component gun with a one-part mixing chamber, as shown in the below annotated image.



*FIG. 5*

Zittel at Fig. 5.

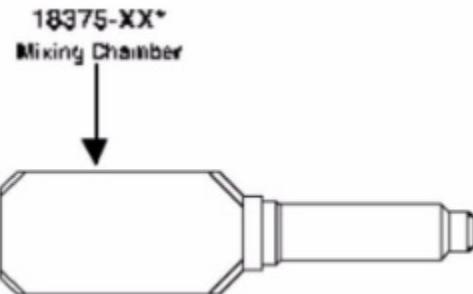
52. Zittel had not issued during the prosecution of the '172 patent and thus was not disclosed to the patent office.

53. I understand the Zittel patent generally describes the Graco's Fusion guns.

#### C. Probler

54. The Probler air purge gun was introduced in the 1970s by GlasCraft and was the dominant air purge gun on the market until the early 2000s. I have personally operated the Probler gun.

55. The Probler has a one-part mixing chamber, as seen in its manual and from an inspection of the physical product.



CCM\_00014096 at CCM\_00014113.



56. I disagree with Dr. Rockstraw (at ¶ 97) that Probler discloses a two-part mixing and dispensing/spraying element as described in the '172 patent because the Probler includes a mixing and dispensing/spraying element made of a single, steel component that is inseparable without destructive disassembly (e.g., cutting, sawing, heating to furnace temperatures, etc.). In other words, the state that the chamber is sold and used in is a single piece, and it is not intended

to be or ever functionally able to be separated.

Term	Percentage
GMOs	~95%
Organic	~90%
Natural	~85%
Artificial	~75%
Organic	~70%
Natural	~65%
Artificial	~60%
Organic	~55%
Natural	~50%
Artificial	~45%

57. The Probler gun was not designed to be compatible with a two-part mixing chamber. That is, the Probler is not designed to secure a two-piece mixing chamber.

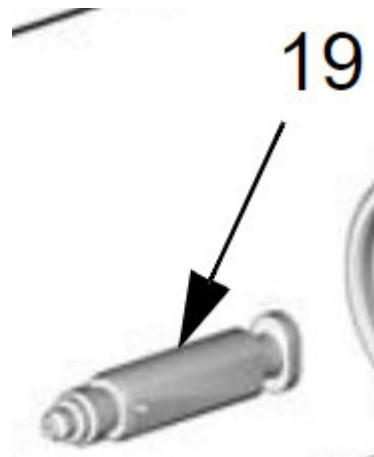
58. Though Probler was sold with a variety of mixing chamber options, as reflect in CCM\_00014096, GRACO\_0054518, GRACO\_0053232, GRACO\_0008799, and GRACO\_0124579, any given Probler using a given mixing chamber had just one set of mixing chamber dimensions. The Probler was compatible with optional pattern augmentation spray tips. GRACO\_0066901. Contrary to Dr. Rockstraw's apparent view (at ¶ 99), a person of skill in the art at the time of the invention understood that pattern augmentation spray tips were components separate from the mixing chamber, not a second part of a mixing chamber.

59. The Probler is specifically mentioned and described in the '172 patent. '172 patent, 2:39-41 (“Plural component guns like those disclosed in the Probst et al. patent have been sold for almost 30 years by Glas-Craft, Inc., with the registered trademark PROBLER®.”).

**D. Fusion**

60. The Fusion air purge gun was originally developed at Graco by a team of engineers including Doug Zittel. I have personally operated Fusion guns on numerous occasions, and trained others on their operation.

61. The Fusion has a one-part mixing chamber, as seen in advertising material and from an inspection of the physical product.



GRACO\_0007952 at GRACO\_0007983.



62. Though Fusion was sold with a variety of mixing chamber options, as reflected in GRACO\_0007952 and CCM\_00013459, any given Fusion using a given mixing chamber had just one set of mixing chamber dimensions. The Fusion was compatible with optional pattern

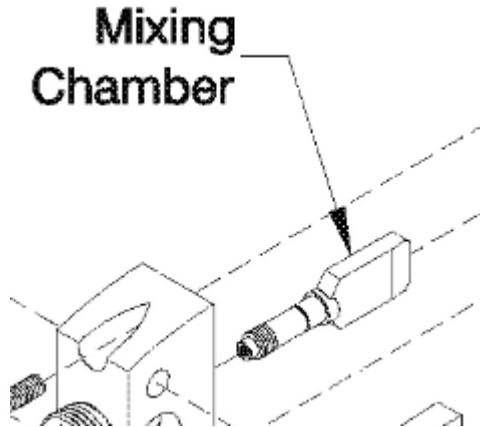
augmentation spray tips. See GRACO\_0007952 at GRACO\_0007986; CCM\_00013459 at CCM\_00013466. Contrary to Dr. Rockstraw's apparent view (at ¶ 101), a person of skill in the art at the time of the invention understood that pattern augmentation spray tip were components separate from the mixing chamber, not a second part of a mixing chamber.

63. Zittel, which I understand is a patent generally describing Graco's Fusion guns, was disclosed during prosecution of the '172 patent.

#### E. GAP

64. The GAP spray foam gun is an air purge gun originally designed and developed by Gusmer. CCM\_00012666. I have personally operated GAP guns on numerous occasions, and trained others on their operation.

65. The GAP has a one-part mixing chamber, as seen in the GAP operating manual.



CCM\_00012666 at CCM\_00012673.



GRACO\_0008718 at GRACO\_0008719.

66. I disagree with Dr. Rockstraw (at ¶ 104) that GAP discloses a two-part mixing and dispensing/spraying element as described in the '172 patent because the GAP includes a mixing and dispensing/spraying element made of a single, inseparable steel component. [REDACTED]

[REDACTED]

[REDACTED]

67. Though GAP was sold with a variety of mixing chamber options, as reflected in CCM\_00012666 and GRACO\_0127405, any given GAP using a given mixing chamber had just one set of mixing chamber dimensions. The GAP was compatible with an optional pattern augmentation spray tip. *See* CCM\_00012666 at CCM\_00012673. Contrary to Dr. Rockstraw's view (at ¶ 104), a person of skill in the art at the time of the invention understood that pattern augmentation spray tip were components separate from the mixing chamber, not a second part of a mixing chamber.

#### **F. Hagfors**

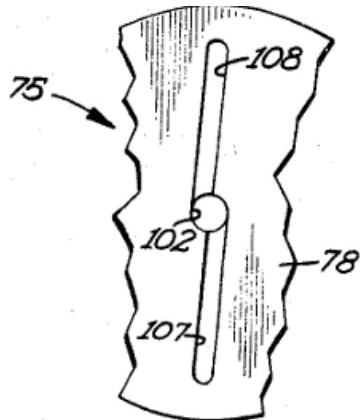
68. United States Patent No. 3,437,273 (Hagfors), titled "Spray Gun," issued on April 8, 1969, to Gerald D. Hagfors. CCM\_00004310.

69. I understand that Hagfors was considered by the patent examiner during the prosecution of the '172 patent.

70. Hagfors describes an airless spray gun used for the application of plural component materials. Hagfors at 1:10-15. Unlike the air purge guns at issue in this case, Hagfors describes clearing excess material from within the gun using a solvent. Hagfors at 7:30-51. In the Hagfors design switching between OFF, solvent, and plural component materials was achieved by rotating the gun body between three positions. Hagfors at 2:8-3:7. Hagfors' mode

of operation is thus unlike the mechanism of the air purge guns at issue in this case, which work through the sliding of the mixing chamber between forward and rearward positions.

71. Hagfors discloses admission passages arranged for plural components to enter the mixing chamber tangentially “whereby the component materials may be thoroughly and uniformly mixed in the chamber by the resulting swirling action of the materials in and along the chamber.” Hagfors at 1:29-33, 2:42-48. Hagfors depicts this arrangement in Figure 6:



**FIG 6**

#### **G. Sinders**

72. United States Patent No. 6,796,461 (Sinders), titled “Air Operable Plural Component Dispensing Apparatus,” issued on September 28, 2004, to Steven Sinders. The patent application that led to the Sinders patent (Application No. 10/695,065) was filed on October 28, 2003, and was not published until the patent issued on September 28, 2004. CCM\_00005443. The PCT application that led to the ’172 patent was filed on November 15, 2004.

73. Sinders is discussed in the background of the '172 patent. '172 patent, 2:42-50.

I understand that Sinders was considered by the patent examiner during the prosecution of the '172 patent.

74. Sinders discloses admission passages intersecting with a mixing chamber in a tangent configuration in Figure 4, reproduced below. This configuration is consistent with the mixing method used in Probst, which Sinders discusses at length. Sinders at 1:50-2:52.

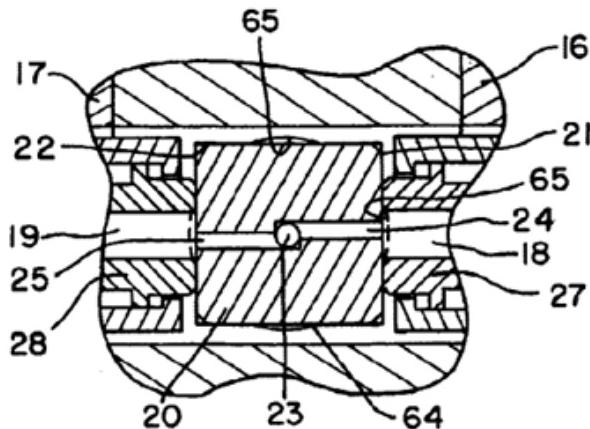


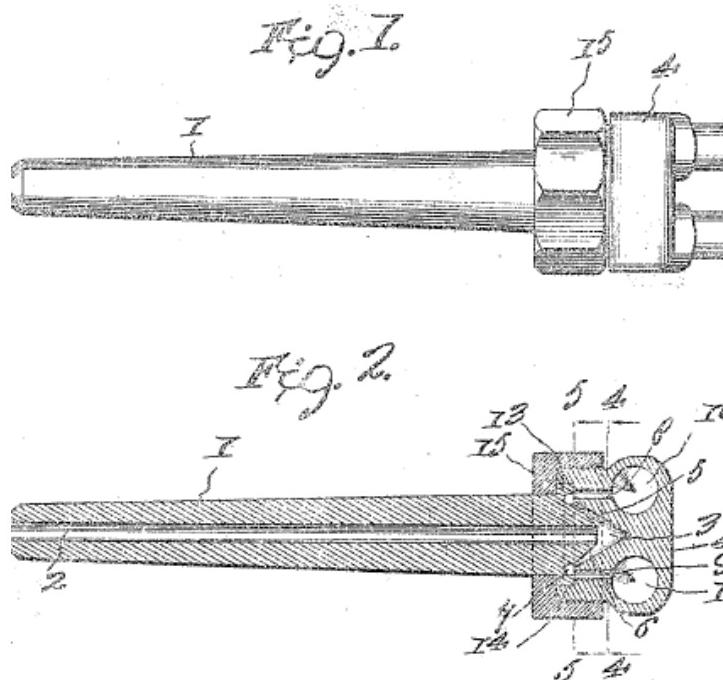
Fig. 4

#### H. Crispell

75. United States Patent No. 1,261,712 (Crispell), titled "Acetylene Torch," issued on April 2, 1918, to Orie Crispell. CCM\_00004160. Crispell was considered during prosecution of the '172 patent and the examiner issued rejections in view of Crispell. Specifically, the examiner rejected pending claim 20, which required "admission passages . . . being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion" (GRACO\_0000050 at GRACO\_0000133), as anticipated by Crispell (*id.* at GRACO\_0000156). In response to this rejection, the applicant explained (1) Crispell is not analogous art as it relates to torches used in welding (*id.* at GRACO\_0000179-81) and (2) Crispell did not anticipate the claims for a number

of reasons, including that it does not disclose the tangent configuration of the claims (*id.* at GRACO\_0000181-83). Steve Sinders provided a declaration in further support of those points. *Id.* at GRACO\_0000202-204.

76. Crispell's Figures 1 and 2, depicting Crispell's "nozzle," reproduced below, confirm that Crispell does not disclose admission passages with a tangent intersection to a mixing chamber.



## VII. THE '172 PATENT

#### A. Claim Construction

77. In forming my opinions expressed herein, I reviewed and applied the claim constructions set forth by the Court for certain claim terms in its Order dated June 7, 2023. (D.I. 147.) I understand the following terms have been construed:

Claim Term	Claim Number(s)	Construction
“connection portion of the housing”	Claims 1, 7	Plain and ordinary meaning.
“being tangent to”	Claims 1, 10	“if extended, touches at a single point on the curved surface of”
“the diameters”	Claims 2, 10	“each of the individual diameters”
“means for connecting a supply of one of the plural components”	Claim 1	<p>Means plus function.  Function: “connecting a supply of one of the plural components with the mixing chamber ...”  Structure: The connector of Figure 2; and as described at '172 patent, 4:30-42, 4:47-58, 6:22-26, 6:32-43, and structural equivalents that have only differences that are insubstantial.</p>
“a connection block for each of the plural components” “each connection block”	Claim 1	“more than one connection block, each block being distinct, and providing means for connecting a supply of one of the plural components with the mixing chamber”

## B. The Patent Claims

78. Dr. Rockstraw's opinion discusses invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14. He further discusses claim 7, which Graco disclaimed during inter partes review. These claims read as follows:

### **Claim 1:**

In an apparatus for mixing the plural components of a plural component material and dispensing the mixed plural component material, including  
a housing including a connection portion at its forward end and an actuator portion at its rearward end;

a mixing and dispensing element formed with opposed planar side portions, an unobstructed air purge-able cylindrical mixing chamber within the element between the planar side portions, a pair of cylindrical admission passages, with one cylindrical admission passage extending between each of the planar side portions and the mixing chamber, and a dispensing orifice in communication with the mixing chamber at the forward end of the mixing and dispensing element, said mixing and dispensing element being slidably carried by the connection portion of the housing;

a connection block for each of the plural components carried by the connection portion of the housing, one connection block being carried on each side of the connection portion of the housing with a side surface interfacing with a planar side portion of the mixing and dispensing element, each connection block providing means for connecting a supply of one of the plural components with the mixing chamber of the mixing and dispensing element and including an internal supply passageway leading to an outlet opening in its side surface, the side surface of each of said connection blocks carrying a seal element around its outlet opening that slidably engages the interfacing planar side portion of the mixing and dispensing element and seals the interface between the connection block and the mixing and dispensing element; and

an air-operated actuator carried by the actuator portion of the housing for sliding the mixing and dispensing element with respect to the connection portion of the housing between a rearward position at which the admission openings of the mixing and dispensing element communicate with the outlet openings of the connection blocks, permitting a flow of the plural components into the mixing chamber for mixing and dispensation, and a forward position at which the outlet openings of the connection blocks are blocked by the planar side portions of the mixing and dispensing element and the admission openings are located to provide a purging flow of air through the mixing chamber and dispensing orifice;

the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part and with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice, each of the admission passages having a cylindrical sidewall with a lesser diameter than the cylindrical sidewall of the mixing chamber, and each of the cylindrical sidewalls of the admission passages crossing and being tangent to the cylindrical sidewall of the mixing chamber at its intersection with the cylindrical sidewall of the mixing chamber, the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross-sectional area of the dispensing orifice.

**Claim 2:**

The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.

**Claim 3:**

The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.

**Claim 4:**

The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.

**Claim 5:**

The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.

**Claim 7 (disclaimed):**

In an apparatus for mixing the plural components of a plural component material and spraying the mixed plural component material, including

- a housing including a connection portion at its forward end and an actuator portion at its rearward end;
- a mixing and spraying element being formed with opposed planar side portions, a mixing chamber including an unobstructed air purge-able passageway with a cylindrical sidewall within the mixing and spraying element between the planar side portions, a pair of admission passages with one admission passage extending between each of the planar side portions and the mixing chamber, each admission passage having a cylindrical sidewall of the substantially the same diameter, and a spraying orifice in communication with the mixing chamber at the forward end of the mixing and spraying element, said mixing and spraying element being slidably carried by the connection portion of the housing;
- a connection block for each of the plural components carried by the connection portion of the housing, one connection block being carried on each side of the connection portion of the housing with a side surface interfacing with a planar side portion of the mixing and spraying element, each connection block providing means for connecting a supply of one of the plural components with the mixing chamber of the mixing and spraying element and including an internal supply passageway leading to an outlet opening in its side surface, the side surface of each of said connection blocks carrying a seal element around its outlet opening that slidably engages the interfacing planar side portion of the mixing and spraying element and seals the interface between the connection block and the mixing and spraying element; and
- an air-operated actuator carried by the actuator portion of the housing for sliding the mixing and spraying element with respect to the connection portion of the housing between a rearward position at which the admission openings of the mixing and spraying element communicate with the outlet openings of the connection blocks, permitting a flow of the plural components into the mixing chamber for mixing and spraying, and a forward position at which the outlet openings of the connection blocks are blocked by the

planar side portions of the mixing and spraying element and the admission openings are located in an air chamber to provide a purging flow of air through the mixing chamber and spraying orifice; the improvement wherein the mixing chamber includes a rearward portion adjacent the admission passages with a diameter that is at least about 1.6 times the diameter of the admission passages and a forward portion, of lesser diameter than the rearward portion, forming the spraying orifice, the spraying orifice having a cross-sectional area about equal to the sum of the cross-sectional areas of the admission passages, the admission passages being each offset from the central axis of the cylindrical sidewall of the mixing chamber about 0.011 to about 0.013 inches with their cylindrical sidewalls tangent to the cylindrical sidewall of the mixing chamber at their intersections with the cylindrical sidewall of the rearward portion of the mixing chamber.

**Claim 10:**

A mixing and spraying element for a plural component spraying apparatus, comprising:  
a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,  
said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end, said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion, said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings, said rearward part being adapted at its forward end to accept the insertion of the forward part,  
said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination, said forward part being adapted at its rear for insertion and joining with the rearward part, the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part, the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part, the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross sectional area of the spraying orifice.

**Claim 11:**

The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.

**Claim 12:**

The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.

**Claim 14:**

The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.

**VIII. LEVEL OF ORDINARY SKILL IN THE ART**

79. As stated in my opening report, a person of ordinary skill in the art at the time of the effective filing date of the application that lead to the '172 patent would have been a person with at least an associate's degree in chemistry or chemical engineering (or a substantively related science or engineering degree) or equivalent work experience, and at least two years of experience in the design, development, and manufacture of polyurethane or plural component systems and devices. Such experience could include, but is not necessarily required to include, knowledge about the design, operation, and maintenance of plural component systems and devices, such as spray guns, as well as experience with designing and/or working with polyurethane systems. Significant training or experience in one aspect of the definition above may make up for an apparent deficiency in training, education, or experience in another aspect. For example, someone with significant experience with polyurethane or plural component systems and devices could qualify as a person of ordinary skill even if that person lacked the formal education.

80. It is unclear what Dr. Rockstraw contends the level of ordinary skill in the art is for the '172 patent. He first states (at ¶ 91) a degree in chemical engineering, materials engineering, mechanical engineering, or equivalent would be required, along with three years of experience. He then contends "significant industry" experience might be adequate, but does not define what that might mean. And he further suggests (at ¶ 92) that graduate level education could be required to understand fluid dynamics. To the extent he contends graduate-level education is required to meet the definition of a person of ordinary skill, Dr. Rockstraw's characterization is wrong as it exceeds the level of education a person of ordinary skill in the art had at the time of the invention. I do not believe the differences between our understanding of the person of ordinary skill in the art make a material difference to the analysis.

## **IX. THE '172 PATENT CLAIMS ARE VALID OVER THE PRIOR ART**

### **A. All Asserted Claims Require a Two-Part Mixing Chamber**

81. Independent claim 1 requires, among other limitations, "a mixing and dispensing element" that "comprises two parts" with a mixing chamber "through the two parts." Similarly, claim 10 requires, among other limitations, a "mixing and spraying element" that comprises "a two-part assembly" forming a "mixing chamber." A person of skill in the art at the time of the invention would have understood the plain meaning of these limitations to require a mixing chamber with two separate parts, not as merely requiring a one-part element with front and rear ends.

82. The specification of the '172 patent confirms this understanding. Figures 4, 7 and 10 show the embodiment of the claimed invention as a two-part mixing chamber with a separate forward element (20a) and reward element (20b).

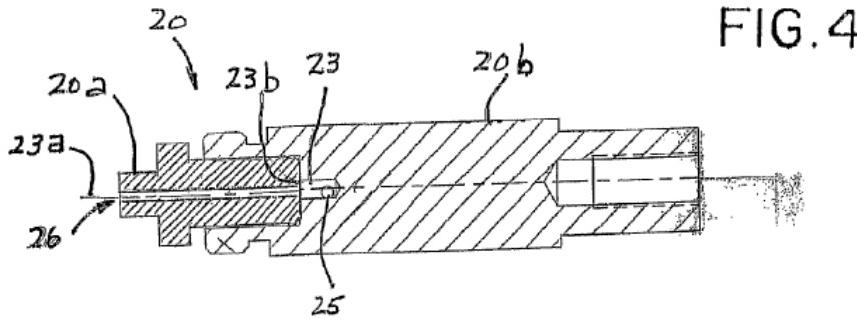


FIG. 4

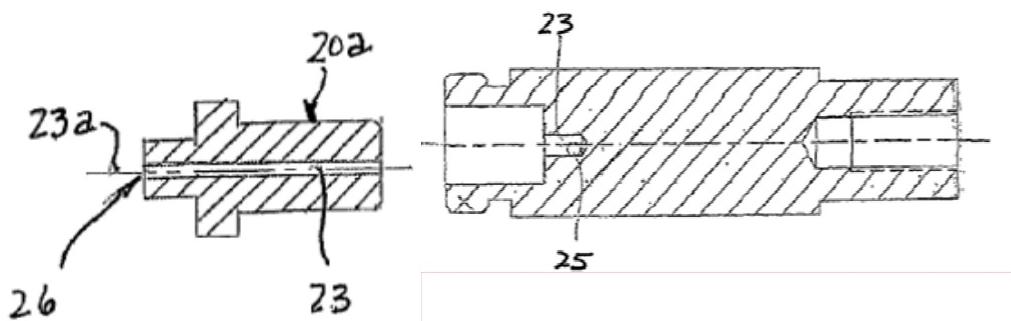


FIG. 7

FIG. 10

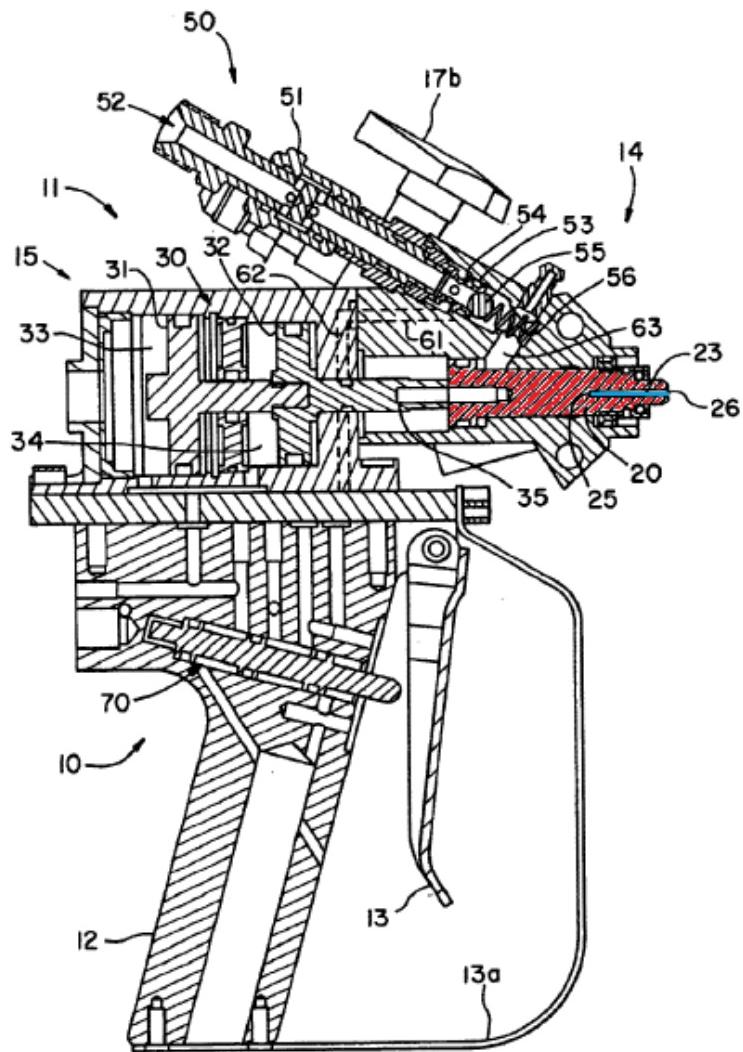
83. The specification further describes how the claimed two-part mixing chamber improves mixing. Specifically, the specification states:

the preferred two-part construction results in a discontinuity 23 b in the mixing chamber 23 (see FIG. 4), which creates turbulence that assists mixing the plural components together without adversely affecting the desired uniformity of the spray pattern formed as the mixed plural component material is dispensed from the dispensing orifice 26. The manufacturing of the mixing and dispensing element 20 is made substantially more reliable and consistent with its preferred two-part construction because the portion of the mixing chamber 23 in the rearward part 20b of the mixing and dispensing element is substantially shorter, further avoiding the departure of the central axis 23a of the mixing chamber 23 from concentricity with its intended position and permitting tangency of the sidewalls of the mixing chamber 23 and admission passage 24, 25.

'172 patent, 6:6-21. A person of skill in the art would not understand the two-part configuration described by the patent, with a discontinuity and concentricity between the two parts, as describing a single part mixing chamber because a design such as the one described must be separable to allow clearing of clogs with a drill bit. If formed as a single piece, whether from a

single machined piece of steel or from two pieces of machined steel welded together, the mixing chamber would not be as described in the patent.

84. The '172 patent prosecution further confirms my opinion that a person of skill in the art would have understood the asserted claims as requiring two separate pieces. During prosecution, the patent examiner initially rejected the proposed claims over United States Patent No. 6,796,461 (Sinders). GRACO\_0000050 at GRACO\_0000100. The Sinders patent describes and depicts a one-part mixing chamber with a single consistent size throughout, as shown in annotated Figure 1 below.



Sinders at Fig. 1 (annotated). The applicant disagreed with the examiner's objection, explaining that Sinders did not disclose the claimed two-part mixing chamber:

Sinders does not disclose, teach or suggest Applicant's claimed new and nonobvious improvements:

"wherein said mixing and dispensing element comprises two parts, with the dispensing orifice being formed in a forward part and said admission passages being formed in a rearward part and with the mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice" — original claims 1-7; or

"wherein the mixing chamber includes a rearward portion adjacent the admission passages with a diameter greater than the diameter of the admission passages and the dispensing orifice" — original claims 8-12; or

"said mixing chamber, including two portions, with said dispensing orifice being formed in a forward portion and said admission passages being formed in a rearward portion, and with the mixing chamber extending forwardly from the admission passages through the two portions to the dispensing orifice, said rearward portion having a diameter greater than said forward portion and said dispensing orifice" —new claims 13-19.

GRACO\_0000050 at GRACO\_0000111. In the next office action, the examiner agrees: "Sinders . . . does not disclose the improvements of a two-part mixing and dispensing element and a mixing chamber with a larger diameter than the dispensing orifice." GRACO\_0000050 at GRACO\_0000119; *also* GRACO\_0000050 at GRACO\_0000157 ("Sinders . . . does not disclose the improvements of a two part mixing and dispensing element and a mixing chamber with a larger diameter than the dispensing orifice, the admission passages at the point of intersection and a discontinuity at the junction."); GRACO\_0000050 at GRACO\_0000220 ("Sinders . . . does not disclose . . . a two part outlet.").

85. Based on the claims, the specification, and the prosecution history of the '172 patent, it is my opinion that a person of skill in the art would have understood the claims, as a matter of their plain meaning, as requiring two separate pieces.

86. I have reviewed the Patent Trial and Appeal Board's Decision Denying Institution of *Inter Partes Review*. Analyzing the intrinsic record, the Board held that the claims require “‘two parts’ or ‘a two-part assembly’ where the two parts are two separate pieces.” IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934930-34. I agree with the Board’s analysis and conclusions, which are consistent with my opinion.

87. I further understand that engineers involved in the development of air purgeable plural component mixing chambers agree that a two-part mixing chamber is two separate pieces. Byrne Tr. 62:20-63:4 (“Q. So from your perspective to be a two-piece mix chamber, you have to be able to move the two pieces apart, right? A. Yes. Q. So if they were welded or connected together, that would not be a two-piece mix chamber, because you couldn’t move them apart. A. Yes.”), 91:6-20 (Q. Okay, yeah. Understood. But if you have a single-piece mix chamber, you can’t disassemble that, right? It’s a single-piece. A. Right. Q. But you can disassemble a two-piece assembly, right? A. Right.); McMichael Tr. 139:2-18 (“Q. What does it mean to be a two-piece mixing chamber? A. You can dissemble it. So one of the advantages of the two-piece mixing chamber is you can change the exit hole size versus the inlet holes. Traditionally, the inlet holes -- the outlet hole is -- the area of that equals twice the area of the inlet holes. So A/B, if you will, those two areas equal the exit hole area. With a two-piece, some materials, you may actually want to be able to change that. So with the two-piece, you can actually change that. You can actually go down a size or up a size a little bit, depending on material, which might help with the spray pattern.”), 144:13-22; Sinders Tr. 242:20-22 (Q. Just high-level, what was a two-piece mix chamber in the P2? A. It’s a removable exit orifice.”); *see also* Anderson Tr. 17:6-19:2 (discussing one part mixing chambers); McCulloch Tr. 50:1-17 (discussing differences

between serviceability of one part and two-part mixing chambers); Zittel Tr. 96:5-14, 267:15-20, 270:14-22.

**B. Jepson-Style Claim Does Not Abrogate All-Elements Rule**

88. Dr. Rockstraw spends several pages (¶¶ 108-127) reciting the elements of claim 1 and separating them into two categories: “preamble” and “the alleged improvement”/“remaining.” Dr. Rockstraw has no invalidity theory based on this analysis. *See* Rockstraw Opening Rpt. ¶ 7 (describing prior art invalidity opinions).

89. I understand that a patent claim must be considered as a whole rather than dissected into its various elements. I understand considering claims as a whole is an important guard against viewing the question of obviousness through hindsight. In particular, I understand that a patent claim is not obvious simply because it is comprised of known elements. Indeed, I understand that invention is often the product of combining known elements in a new way. In my opinion, Dr. Rockstraw and Ms. Teresa Rea improperly dissect claim 1 of the ’172 patent into individual elements, without considering the novelty and nonobviousness of those elements in combination. *See, e.g.*, Rockstraw Op. Rpt. ¶¶ 114-117; Rea Op. Rpt. ¶ 92. As explained throughout my report, the claimed invention as a whole, with all its elements arranged as claimed, was not known or obvious.

90. I understand limitations in a preamble of a Jepson-style claim are limitations that must be shown in a prior art reference, in addition to limitations in the body of such claims. I additionally understand that Claim 10 is not a Jepson-style claim.

91. I disagree with Dr. Rockstraw (at ¶ 127) that claim 1 of the ’172 patent is obvious in view of either the Jepson claim limitations themselves or the Sinders patent. As explained in detail elsewhere in this report, the two-part configuration of the claimed mixing and dispensing/spraying element was novel and nonobvious at the time of the invention, as was the

claimed differences between the size of the rearward and forward portions of the claimed mixing chamber.

**C. Probst Does Not Render Obvious the Claims of the '172 Patent**

92. Dr. Rockstraw proposes the following bases of invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 in view of Probst: single reference obviousness, obviousness in view of the state of the art, and obviousness in view of Probler. Rockstraw Op. Rpt. ¶ 7. I address each of Dr. Rockstraw's Probst-based invalidity theories below.

93. As an initial matter, I disagree with Dr. Rockstraw's claim that a person of skill in the art would mix-and-match between printed publications and physical prior art products to arrive at the claimed invention. *E.g.*, Rockstraw Op. Rpt. ¶¶ 129, 132, 136, 140, 143, 146, 149, 153, 156, 160, 165, 169, 173, 179, 185, 191, 197, 201, 204, 208, 212, 216, 220, 224, 227 (suggesting that a person of ordinary skill in the art would look to Probler, Zittel, Fusion, and GAP). Dr. Rockstraw identifies no specific reason that would have motivated a person of skill in the art to modify the Probst reference in view of another to achieve each of the claim limitations for which he generically uses the language. A person of ordinary skill would not have been motivated to make such changes, as outlined in Section X.

**1. Claim 1**

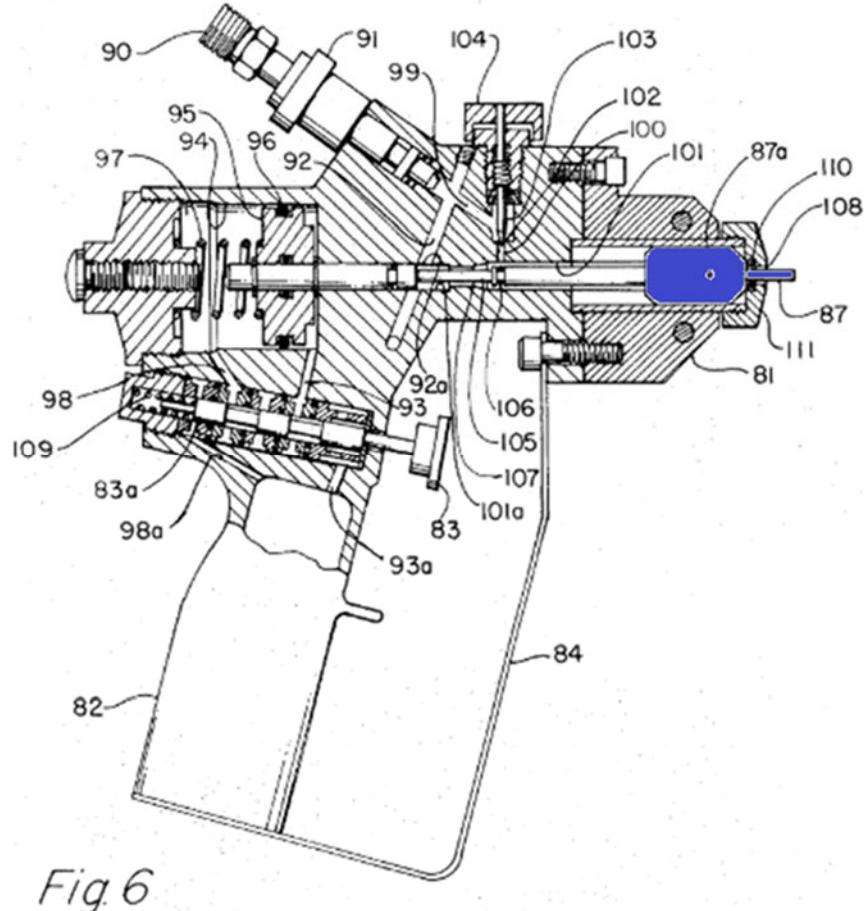
94. Because Probst does not disclose every element of claim 1 and it would not be obvious to a person of skill in the art to modify Probst to practice every element of the claim 1, Probst does not render claim 1 obvious. Claim 1 is also not obvious over Probst in view of the state of the art or in view of Probler, at least because neither the general state of the art nor Probler disclose or render obvious the claimed two-part configuration of claim 1.

95. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to

the claimed configuration and would not have reasonably expected such a modification to be successful.

- a. [1a] **the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice**

96. Probst does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice.” Probst describes a single component—means 87—as containing its mixing chamber and thus does not have a “forward part” and a “rearward part” as claimed. Probst at 10:32-37 (“In this first position, apertures 87a directly adjoin connections 85 and 86 and the components of the plural component material are permitted to flow through apertures 87a into the mixing chamber for mixing and dispensing through an orifice (unshown at the front of means 87.”). Means 87 is highlighted in the below annotated Figure 6 from the Probst patent.



*Fig. 6*

97. I understand that that Patent Trial and Appeal Board declined to institute inter partes review of the '172 patent based, in part, on its finding that "Probst does not include any disclosure or suggestion that either the means forming the mixing chamber (87) or the corresponding elongated means (40) is formed from two or more pieces of material." IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934937-39. I agree with the Board's analysis and conclusion about the disclosure of Probst.

98. In my opinion, Probst's reference to "orifice (unshown)" is not a suggestion of a second, missing piece. Probst at 10:32-37. A person of skill in the art would understand that to mean simply that the hole at the front of means 87 is unshown—i.e., there is not an image

showing a view from the front of the gun. The same is true for the portion of Probst discussing the pathway for purging air. Probst at 11:6-9 (“[T]he high pressure air is forced from compartment 101 through orifices 87a and the dispensing orifice in front of means 87, purging the interior of the mixing chamber.”). The orifice at the front on means 87 is not a separate part, it is a hole at the front of a single part. See Probst at 10:40-41 (describing the “forwardly-extending, orifice-forming portion of means 87”).

99. I disagree with Dr. Rockstraw (at ¶¶ 177, 183, 189, 195) that Probst’s reference to a “cooperatively associated orifice” discloses or suggests a two-part mixing and dispensing element as claimed. Probst at 2:50-52. As an initial matter, in that very sentence, Probst describes a single piece “mixing chamber.” *Id.* Additionally, the remainder of Probst’s discussion of its dispensing orifice (Probst at 10:32-37, 10:40-41, 11:6-9, cl. 4) makes clear that the Probst dispensing orifice is part of the singular mixing chamber mean 87. Further, a person of skill in the art would not understand any additional spray pattern modification tips to be a continuation of the mixing chamber through a second part. I understand that the Patent Trial and Appeal Board declined to institute inter partes review of the ’172 patent based, in part, on its conclusion that Dr. Rockstraw’s analysis of this portion of Probst was conclusory and failed to account for Probst as a whole, including Probst’s unambiguous disclosure of a one-part mixing chamber. IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934938. I concur with the Board’s analysis and conclusion.

100. As discussed above and incorporated here, I also disagree with Dr. Rockstraw (at ¶¶ 177, 182, 188, 194) that a person of skill in the art would understand claim 1 as requiring only “a singular element with two identifiable parts.” A person of skill in the art at the time of the

invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

101. A person of skill in the art would not understand the construction of Probst's mixing chamber was inherently manufactured from two pieces. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. Mixing chambers having a Probst-type configuration were not necessarily manufactured from two pieces. Indeed, Mr. Steve Sinders explained in his deposition that such mixing chambers were originally machined as a single piece. Sinders Tr. 245:13-246:7. Because the Probst mixing chamber is depicted and described as a single piece, and because such mixing chambers could be machined a single piece, manufacture from two pieces is not inherently disclosed by the Probst.

102. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

103. In my opinion, Dr. Rockstraw's dissection (at ¶¶ 174-201) of the various parts of the claim requirement he labels "1[a]" ("said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission

passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice") is improper. The claim element must be read together as whole because it describes a single configuration wherein a cylindrical mixing chamber continues through a two-part mixing dispensing element, from the admission passages to the dispensing orifice. A person of skill in the art would understand this mixing chamber configuration as distinctly different from Probst's disclosure, wherein the mixing chamber continues through a single part.

104. "The state of the art" does not disclose or render obvious "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice." Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

105. As explained below and incorporated by reference here, Probler does not disclose or render obvious a "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice" as required by claim 1. Specifically, Probler includes a one-part mixing chamber. In my opinion,

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in the art in view of a combination of the two references.

2. **Claim 2 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.**

106. As discussed above, Probst does not render obvious Claim 1, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 2 is not obvious at least because claim 1 is not obvious.

107. Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” Probst does not disclose this limitation. *See generally* Probst. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 209-212.

108. I disagree with Dr. Rockstraw (at ¶ 210) that this limitation is inherent in Probst. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. In my opinion, the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections is not necessarily present in Probst. Indeed, a visual inspection of Figure 5 suggests a ratio of about 1.4, which was the common configuration at the time of the

'172 patent. Probst at Fig. 5. A ratio of about 1.4 was the common configuration at the time of the '172 patent. Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the dispensing orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See Rockstraw Op. Rpt.* ¶ 206. Thus, spray foam guns could and did operate without the claimed configuration and, in fact, such configurations could be desirable in certain applications.

109. “The state of the art” does not render this limitation obvious. Dr. Rockstraw points to nothing in the art disclosing “the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” His general statement that relationships between sizes of admission passages and mixing chambers were known does not establish that the particular claimed relationship was known. As Dr. Rockstraw consistently points out (e.g., ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention. A person of skill in the art would not have been motivated to modify Probst’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

110. As explained below and incorporated by reference here, Probler does not disclose or render obvious “the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

3. **Claim 3 - The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.**

111. As discussed above, Probst does not render obvious Claim 1, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 3 is not obvious at least because claim 1 is not obvious.

4. **Claim 4 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.**

112. As discussed above, Probst does not render obvious Claim 1, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 4 is not obvious at least because claim 1 is not obvious.

113. Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” Probst does not disclose this limitation or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Probst. Instead, Probst’s mixing chamber is the same size through the dispensing orifice. Probst at 5:45-47. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 217-220. At the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

114. Because Probst specifically teaches that it discloses a mixing chamber having a single, consistent size, I disagree with Dr. Rockstraw that this limitation is inherent in Probst. Probst at 5:45-47.

115. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

116. And as explained below and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” Because neither Probst nor Probler discloses this limitation, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**5. Claim 5 - The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.**

117. As discussed above, Probst does not render obvious Claim 1 or 4, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 5 is not obvious at least because claims 1 and 4 are not obvious.

118. Probst does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” *See generally* Probst. Instead, Probst’s mixing chamber is the same size through the dispensing orifice. Probst at 5:45-47. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 221-224.

119. Because Probst specifically teaches that it discloses a mixing chamber having a single, consistent size, I disagree with Dr. Rockstraw that this limitation is inherent in Probst. Probst at 5:45-47.

120. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations. As Dr. Rockstraw consistently points out (e.g., ¶ 222), the Probst patent and Probler gun had been used for decades at the time of the invention.

121. As explained below and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” Because neither Probst nor Probler discloses this

limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

#### 6. Claim 10

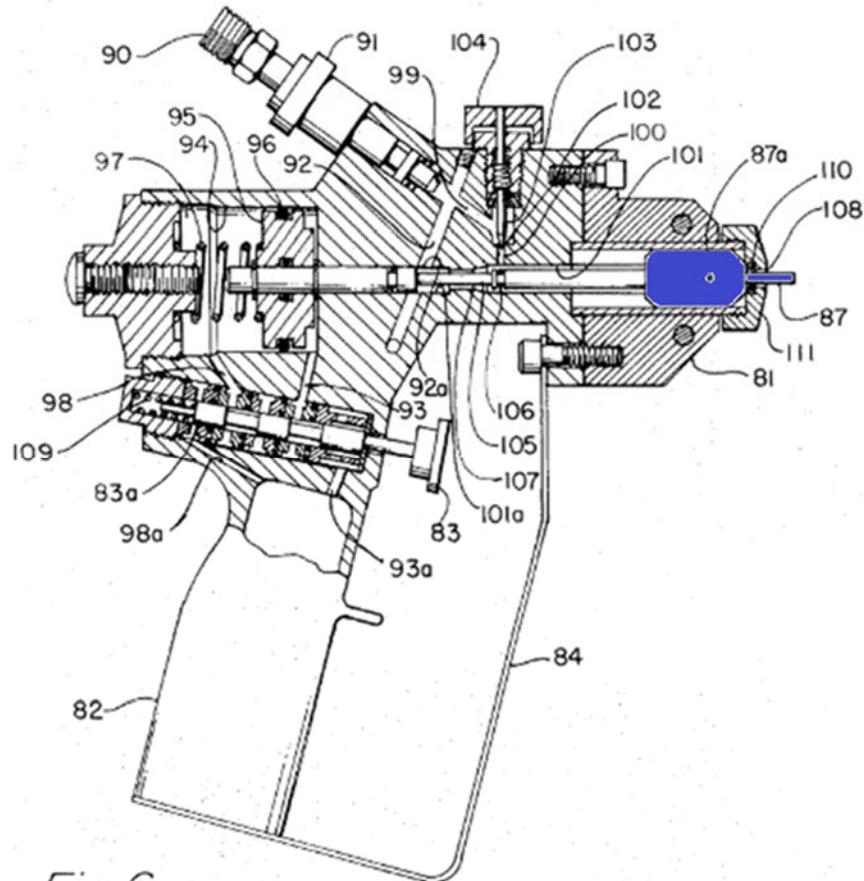
122. Because Probst does not disclose every element of claim 10 and it would not be obvious to a person of skill in the art to modify Probst to practice every element of the claim 10, Probst does not render claim 10 obvious. Claim 10 is also not obvious over Probst in view of the state of the art or in view of Probler, at least because neither the general state of the art nor Probler disclose or render obvious the claimed two-part configuration of claim 10.

123. As explained below in Sections X and XI, and incorporated here, a person of skill in the art at the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

a. **[10a] a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,**

124. Probst does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Probst describes a single component—means 87—as containing its mixing chamber, and thus does not have a separate “forward part” and “rearward part” as claimed. Probst at 10:32-37 (“In this first position, apertures 87a directly adjoin connections 85 and 86 and the components of the plural component material are permitted to flow through apertures 87a into the mixing chamber for mixing and dispensing through an orifice (unshown) at the front of means 87.”). It does not

describe or disclose a “two-part” assembly with a “rearward part” and a “forward part” as claimed. Means 87 is highlighted in the below annotated Figure 6 from the Probst patent.



*Fig. 6.*

125. I understand that the Patent Trial and Appeal Board declined to institute inter partes review of the '172 patent based, in part, on its finding that "Probst does not include any disclosure or suggestion that either the means forming the mixing chamber (87) or the corresponding elongated means (40) is formed from two or more pieces of material." IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934937-39. I agree with the Board's analysis and conclusion about the disclosure of Probst.

126. In my opinion, Probst's reference to "orifice (unshown)" is not a suggestion of a second, missing piece. A person of skill in the art would understand that to mean simply that the hole at the front of means 87 is unshown—i.e., there is not an image showing a view from the front of the gun. The same is true for the portion of Probst discussing the pathway for purging air. Probst at 11:6-9 ("[T]he high pressure air is forced from compartment 101 through orifices 87a and the dispensing orifice in front of means 87, purging the interior of the mixing chamber."). The orifice at the front on means 87 is not a separate part, it is a hole at the front of a single part. *See* Probst at 10:40-41 (describing the "forwardly-extending, orifice-forming portion of means 87").

127. I disagree with Dr. Rockstraw (at ¶ 230) that Probst's reference to a "cooperatively associated orifice" discloses or suggests a two-part mixing and dispensing element as claimed. Probst at 2:50-52. As an initial matter, in that very sentence, Probst describes a single-piece "mixing chamber." *Id.* Additionally, the remainder of Probst's discussion of its dispensing orifice (Probst at 10:32-37, 10:40-41, 11:6-9, cl. 4) make clear that Probst dispensing orifice is part of the singular mixing chamber mean 87. Further, a person of skill in the art would not understand any additional spray pattern modification tips to be a continuation of the mixing chamber through a second part. I understand that that Patent Trial and Appeal Board declined to institute inter partes review of the '172 patent based, in part, on its conclusion that Dr. Rockstraw's analysis of this portion of Probst was conclusory and failed to account for Probst as a whole, including Probst's unambiguous disclosure of a one-part mixing chamber. IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934938. I concur with the Board's analysis and conclusion.

128. As explained above and incorporated here by reference, I also disagree with Dr. Rockstraw (at ¶ 230) that a person of skill in the art would understand claim 10 as requiring only “singular element with two assembled parts.” A person of skill in the art at the time of the invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

129. A person of skill in the art would not understand the construction of Probst’s mixing chamber was inherently manufactured from two pieces. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. Mixing chambers having a Probst-type configuration were not necessarily manufactured from two pieces. Indeed, Mr. Steve Sinders explained in his deposition that such mixing chambers were originally machined as a single piece. Sinders Tr. 245:13-246:7. Because the Probst mixing chamber is depicted and described as a single piece, and because such mixing chambers could be machined a single piece, manufacture from two pieces is not inherently disclosed by the Probst.

130. Additionally, as explained, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Thus, even if such a design was inherent (it isn’t), it would not disclose the two-part mixing and dispensing element of claim 1.

131. “The state of the art” does not disclose or render obvious “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

132. As explained below and incorporated by reference here, Probler does not disclose or render obvious “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components” as required by claim 10. Probler has a one-part mixing chamber. In my opinion, [REDACTED]

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

[REDACTED] Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- b. [10b] said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end,

133. Probst does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” As explained above with regard to [10a] Probst does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion” or a “central passageway with a cylindrical side wall extending to its forward end” of such part.

134. “The state of the art” does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

135. As explained below and incorporated by reference here, Probler does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. Probler has a one-

part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- c. **[10c] said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion,**

136. Probst does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” As explained above with regard to [10a] Probst does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

137. “The state of the art” does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst’s mixing

chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

138. As explained below and incorporated by reference here, Probler does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion” as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

d. **[10d] said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings,**

139. Probst does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” As explained above with regard to [10a] Probst does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

140. “The state of the art” does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the

contrary. A person of skill in the art would not have been motivated to modify Probst's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

141. As explained below and incorporated by reference here, Probler does not disclose or render obvious "said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings" as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

e. **[10e] said rearward part being adapted at its forward end to accept the insertion of the forward part,**

142. Probst does not disclose or render obvious "said rearward part being adapted at its forward end to accept the insertion of the forward part." As explained above with regard to [10a] Probst does not disclose or render obvious a "rearward part" as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a "rearward part," it does not have such a part "adapted at its forward end to accept the insertion of the forward part." Indeed, Probst describes a one-piece mixing chamber and makes no reference to a rearward part adapted to receive a forward part. I further note that the portion of Probst Figure 6 Dr. Rockstraw points to does not show any part adapted at its forward end. Rockstraw Op. Rpt. ¶240. Dr. Rockstraw's annotations are merely two abutting colors without any adaptation whatsoever.

143. "The state of the art" does not disclose or render obvious "said rearward part being adapted at its forward end to accept the insertion of the forward part." Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not

disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

144. As explained below and incorporated by reference here, Probler does not disclose or render obvious "said rearward part being adapted at its forward end to accept the insertion of the forward part" as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

f. **[10f] said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination,**

145. Probst does not disclose or render obvious "said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination." As explained above with regard to [10a] Probst does not disclose or render obvious a "forward part" as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a "forward part," it does not have a "forward internal mixing chamber portion" or a "spraying orifice at its forward termination" of such part.

146. "The state of the art" does not disclose or render obvious "said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination." Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus

did not disclose or render obvious a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

147. As explained below and incorporated by reference here, Probler does not disclose or render obvious "said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination" as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

g. **[10g] said forward part being adapted at its rear for insertion and joining with the rearward part,**

148. Probst does not disclose or render obvious "said forward part being adapted at its rear for insertion and joining with the rearward part." As explained above with regard to [10a] Probst does not disclose or render obvious a "forward part" as claimed. I incorporate my analysis of [10a] by reference here. Because Probst does not have a "forward part," it does not have such a part "adapted at its rear for insertion and joining with the rearward part." Indeed, Probst describes a one-piece mixing chamber and makes no reference to a forward part adapted to insert and join with a rearward part. I further note that the portion of Probst Figure 6 Dr. Rockstraw points to does not show any part adapted at its rear for insertion. Dr. Rockstraw's annotations are merely two abutting colors without any adaptation whatsoever.

149. "The state of the art" does not disclose or render obvious "said forward part being adapted at its rear for insertion and joining with the rearward part." Mixing and spraying

elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

150. As explained below and incorporated by reference here, Probler does not disclose or render obvious "said forward part being adapted at its rear for insertion and joining with the rearward part" as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- h. **[10h] the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part,**

151. Probst does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part." As explained above with regard to [10a]-[10g] Probst does not disclose or render obvious a "forward part" or a "rearward part" as claimed. I incorporate my analysis of [10a]-[10g] by reference here. Because Probst does not have a "forward part" or a "rearward part" it does not disclose two "unobstructed central passageway(s)" located for open communication, or inserting and joining.

152. "The state of the art" does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward

part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

153. As explained below and incorporated by reference here, Probler does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part” as required by claim 10. Probler has a one-part mixing chamber. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- i. **[10i] the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part,**

154. Probst does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” As explained above with regard to [10a]-[10h] Probst does not disclose or render obvious a “forward part” or a “rearward part” as claimed. I incorporate my analysis of [10a]-[10h] by reference here.

155. Probst further does not disclose a mixing chamber—two part or otherwise—with different diameters or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Probst. Instead, Probst’s mixing chamber is the same size through

the spraying orifice. Probst at 5:45-47. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 269-272. At the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to spraying orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

156. Because Probst specifically teaches that it discloses a mixing chamber having a single, consistent size I disagree with Dr. Rockstraw that this limitation is inherent in Probst. Probst at 5:45-47.

157. “The state of the art” does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probst’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

158. As explained below and incorporated by reference here, Probler does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part” as required by claim 10. Probler has a one-part mixing chamber with a single consistent

diameter throughout. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

j. **[10j] the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross sectional area of the spraying orifice.**

159. Probst does not disclose or render obvious “the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross sectional area of the spraying orifice.” *See generally* Probst. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 273-276.

160. I disagree with Dr. Rockstraw (at ¶ 274) that this limitation is inherent in Probst. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. In my opinion, the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross-sectional area of the spraying orifice are not necessarily present in Probst. A spray foam gun could operate without the claimed configuration and, in fact, such configurations can be desirable in certain applications.

7. **Claim 11 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.**

161. As discussed above, Probst does not render obvious Claim 10, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 11 is not obvious at least because claim 10 is not obvious.

162. Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6

times the diameter of the cylindrical side walls of the admission passages at their intersections.”

*See generally* Probst. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt.

¶¶ 277-280.

163. I disagree with Dr. Rockstraw (at ¶ 278) that this limitation is inherent in Probst. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. In my opinion, the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections is not necessarily present in Probst. Indeed, a visual inspection of Figure 5 suggests a ratio of about 1.4, which was the common configuration at the time of the ’172 patent. Probst at Fig. 5. A ratio of about 1.4 was the common configuration at the time of the ’172 patent. Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the spraying orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See* Rockstraw Op. Rpt. ¶ 274. Thus, spray foam guns could and did operate without the claimed configuration and, in fact, such configurations can be desirable in certain applications.

164. “The state of the art” does not render this limitation obvious. Dr. Rockstraw points to nothing in the art disclosing “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.” His general statement that relationships between sizes of admission passages and mixing chambers were known does not establish that the particular claimed relationship was known. As Dr. Rockstraw consistently

points out (e.g., ¶ 278), the Probst patent and Probler gun had been used for decades at the time of the invention.

165. As explained below and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Probler has a one-part mixing chamber and does not disclose the ratio of 1.6 required by claim 11. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

8. **Claim 12 - The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.**

166. As discussed above, Probst does not render obvious Claim 10, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 12 is not obvious at least because claim 10 is not obvious.

9. **Claim 14 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.**

167. As discussed above, Probst does not render obvious Claim 10, nor does Probst in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 14 is not obvious at least because claim 10 is not obvious.

168. Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” Probst does not disclose or suggest a

mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Probst. Instead, Probst's mixing chamber is the same size through the spraying orifice. Probst at 5:45-47. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 285-288.

169. Because Probst specifically teaches that it discloses a mixing chamber having a single, consistent size, I disagree with Dr. Rockstraw that this limitation is inherent in Probst. Probst at 5:45-47.

170. "The state of the art" does not render "the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part" obvious. Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part with different sizes as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. As Dr. Rockstraw consistently points out (e.g., ¶ 286), the Probst patent and Probler gun had been used for decades at the time of the invention.

171. As explained below and incorporated by reference here, Probler does not disclose or render obvious "the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part" as required by claim 10. Probler has a one-part mixing chamber with a single consistent diameter throughout. Because neither Probst nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**D. Probler Does Not Anticipate or Render Obvious the Claims of the '172 Patent**

172. Dr. Rockstraw proposes the following bases of invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 in view of Probler: anticipation, single reference obviousness, obviousness in view of Probst, obviousness in view of the state of the art, and obviousness in view of GAP. Rockstraw Op. Rpt. ¶ 7. I address each of Dr. Rockstraw's Probler-based invalidity theories below, but first I address Dr. Rockstraw's misunderstanding (at ¶¶ 289-296) of the Probler mixing chamber.

173. The Probler mixing chamber was a one-part mixing chamber, consistent with all air purge mixing chambers known at the time of the invention. Examples of Probler mixing chambers are depicted below.

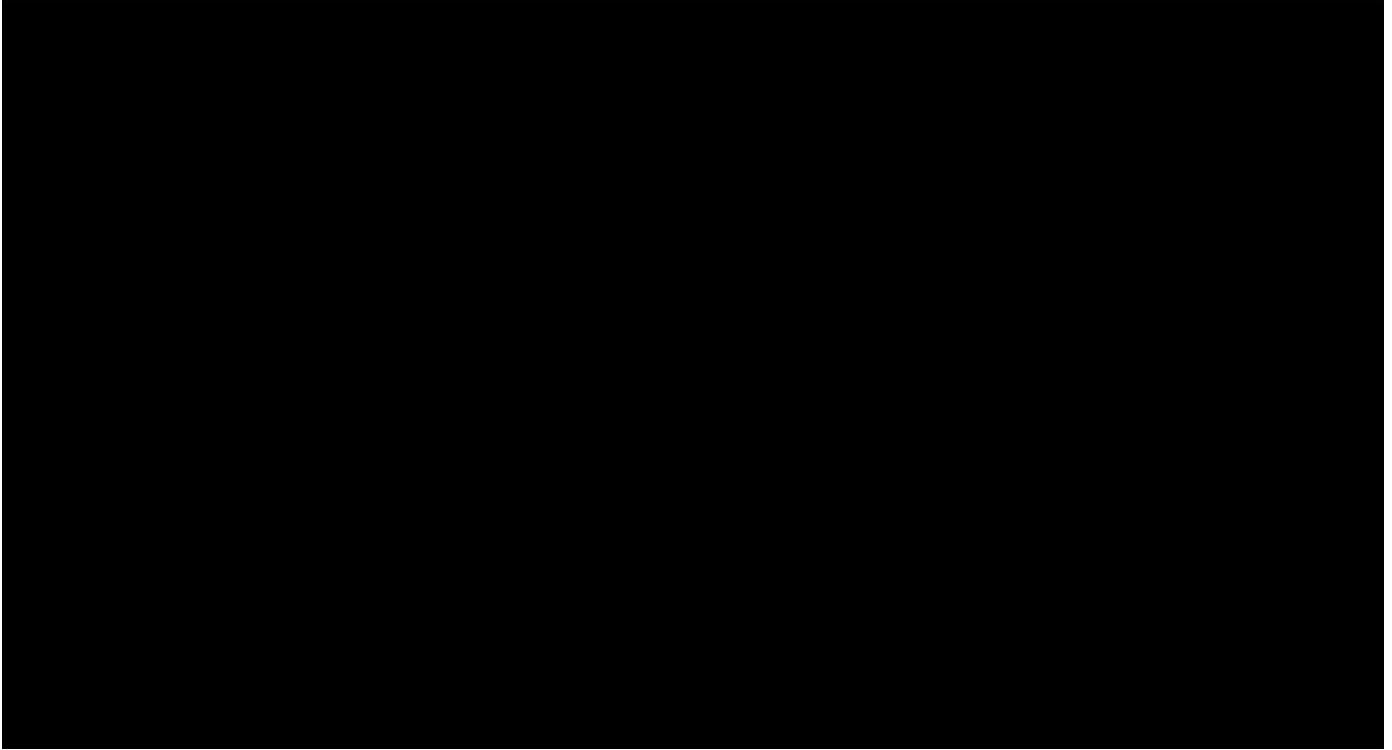


*See also CCM\_00013458 at 2:18, 7:50.*

174. [REDACTED]

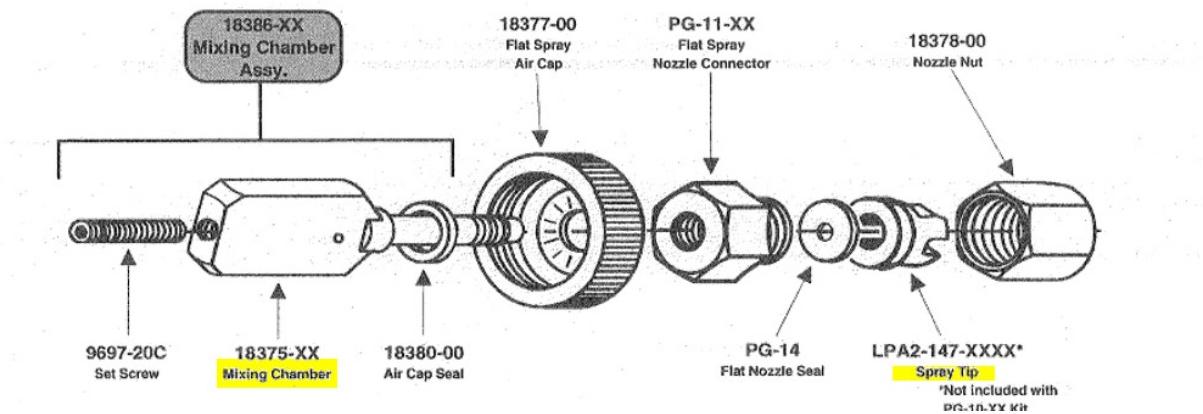
[REDACTED]  
[REDACTED] A person of ordinary skill in the art would understand that such mixing chambers are one part mixing chambers. I disagree with Dr. Rockstraw's contentions that the way in which Probler mixing chambers were fabricated changes their character from one part to two parts.

175. As also discussed above, Probler mixing chambers could be fitted with a variety of optional pattern augmentation spray tips. Examples of these tips are depicted below.



176. Pattern augmentation spray tips are added to the front of the mixing chamber and are not themselves a part of the mixing chamber. A person of skill in the art at the time of the invention understood the difference—they understood what was meant by “mixing chamber” as distinct from “tips.” Mixing of the plural components happened within the mixing chamber and pattern augmentation spray tips formed or changed the spray pattern as the mixed components were dispensed. Manuals for the Probler gun are consistent with the recognized distinction between mixing chambers and tips at the time of the invention:

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GRACO\_0215430 at GRACO\_0215447 (1999 manual); GRACO\_0150162 at GRACO\_0150179 (same in 1998 manual).

177. I disagree with Dr. Rockstraw that the numerous references and physical products he points to from several different years represent a single disclosure of a “wholistic” Probler gun. Rockstraw Op. Rpt. ¶¶ 295-296. A person of skill in the art at the time of the invention would have understood that certain Probler mixing chambers were usable with certain proportioners for certain applications and with certain optional spray pattern augmentation tips. They would not have known to change the individual sizes of individual passages within those mixing chambers to achieve a result, as changing one aspect would impact the entire system and usefulness.

178. Because Dr. Rockstraw does not identify which specific references and products he is relying on for his opinions on the invalidity of the claims over the Probler, it is my opinion that he has failed to adequately show that any single reference or particular combination of references invalidates the claims. See Rockstraw Op. Rpt. ¶ 296.

179. To the extent that Dr. Rockstraw relies on [REDACTED]

[REDACTED], I do not agree that

a person of skill in the art would have considered these materials as they were not public at the time of invention. [REDACTED] a person of skill in the art would not and could not have considered them and, I understand, they are not prior art. I nevertheless address them below.

180. Further, I disagree with Dr. Rockstraw's claim that a person of skill in the art would mix-and-match between printed publications and physical prior art products to arrive at the claimed invention. *E.g.*, Rockstraw Op. Rpt. ¶¶ 301, 305, 312, 317, 322, 327, 333, 334, 338, 343, 353, 358, 363, 364 (suggesting that a person of ordinary skill in the art would look to "Probler literature," Probst, GAP, and Fusion). Dr. Rockstraw identifies no specific reason that would have motivated a person of skill in the art to modify Prober 1 in view of another reference to achieve each of the claim limitations for which he generically uses the language. A person of ordinary skill would not have been motivated to make such changes, as outlined in Section X.

#### 1. **Claim 1**

181. Because Probler does not disclose every element of claim 1 and it would not be obvious to a person of skill in the art to modify Probler to practice every element of the claim 1, Probler does not anticipate or render claim 1 obvious. Claim 1 is also not obvious over Probler in view of Probst, the state of the art or GAP, at least because neither the general state of art, Probst, or GAP disclose or render obvious the claimed two-part configuration of claim 1.

182. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

183. Further, Dr. Rockstraw's citation to dozens of documents and images of physical products does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 1.

- a. **[1a] the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice**

184. Probler does not disclose or render obvious a "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice." Probler's mixing chamber is one part and thus does not have a "forward part" and a "rearward part" as claimed.

185. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶ 365) that a person of skill in the art would understand claim 1 as requiring only "an identifiable mixing part and a dispensing part." A person of skill in the art at the time of the invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

186. Probler's mixing chambers are one part mixing chambers. As explained, [REDACTED]

187. [REDACTED]

[REDACTED]

[REDACTED]

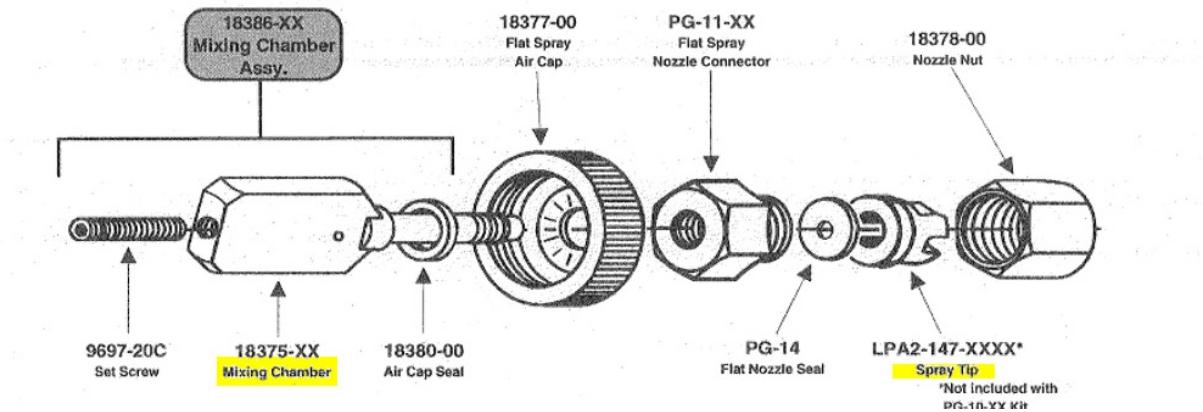
[REDACTED]

[REDACTED]

188. Probler manuals and marketing materials confirm the Probler mixing chamber is one part—it has a single part number and is sold and described as a single unit. *See* GRACO\_0215430 at GRACO\_0215436; *see also* GRACO\_0150162; GRACO\_0151015; GRACO\_0152054; GRACO\_0153065; GRACO\_0152986; GRACO\_0152899; GRACO\_0203598; GRACO\_0215460; CCM\_00013457.

189. Probler flat tip mixing chambers are one part mixing chambers. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in Probler manuals, the tips are additions added in front of the mixing chamber to augment a spray pattern.

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GRACO\_0215430 at GRACO\_0215447 (1999 manual); GRACO\_0150162 at

GRACO\_0150179 (same in 1998 manual).

190. I disagree with Dr. Rockstraw (at ¶ 376) to the extent he suggests that a flat tip is a required addition to the Probler mixing chamber to create a “spray.” The Probler mixing chambers could and did spray without the optional tips.

191. Additionally, Probler flat spray tips are not cylindrical as required by claim 1. Specifically, claim 1 requires the “*cylindrical* mixing chamber” extend “from the admission passages through the two parts to the dispensing orifice.” Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This confirms that the Probler tips are not a second part of the mixing chamber as claimed.

192. A physical inspection of Probler further confirms it is a single part, and thus does not disclose this limitation.

193. In my opinion, Dr. Rockstraw’s dissection (at ¶¶ 364-387) of the various parts of the claim requirement he labels “1[a]” (“said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing

chamber extending forwardly from the admission passages through the two parts to the dispensing orifice") is improper. The claim element must be read together as whole because it describes a single configuration wherein a cylindrical mixing chamber continues through a two-part mixing dispensing element, from the admission passages to the dispensing orifice. A person of skill in the art would understand this mixing chamber configuration as distinctly different from Probler, wherein the mixing chamber continues through a single part.

194. Because nothing Dr. Rockstraw points to as evidence of Probler disclosing a two-part mixing chamber, Probler does not anticipate the claim or render the claim obvious.

195. "The state of the art" does not disclose or render obvious "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice." Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

196. As explained above and incorporated by reference here, Probst does not disclose or render obvious a "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice" as

required by claim 1. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

197. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice” as required by claim 1. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

2. **Claim 2 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.**

198. As discussed above, Probler does not anticipate or render obvious Claim 1, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 2 is not obvious at least because claim 1 is not obvious.

199. Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

200. I disagree with Dr. Rockstraw that a person of skill in the art would understand that claim 2 implicitly includes the language “or more.” As Dr. Rockstraw points out, the specification used that language, but it is not in the claims. A person of skill in the art would therefore give the claims their ordinary meaning, which is “approximately.”

201. Because nothing Dr. Rockstraw points to as evidence of Probler discloses this limitation, Probler does not anticipate claim 2 or render the claim 2 obvious.

202. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g., ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention.

203. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections” as required by claim 2. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

204. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections” as required by claim 2. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

3. **Claim 3 - The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.**

205. As discussed above, Probler does not anticipate or render obvious Claim 1, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 3 is not obvious at least because claim 1 is not obvious.

4. **Claim 4 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.**

206. As discussed above, Probler does not anticipate or render obvious Claim 1, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 4 is not obvious at least because claim 1 is not obvious.

207. I disagree with Dr. Rockstraw (at ¶ 420) that claim 4 is inconsistent with claim 1's requirement that the mixing chamber be unobstructed. As I explained in my opening expert report, a person of skill in the art would not understand the concentric cylinders requires by the claims of the '172 patent as creating obstructions. An "obstructed" mixing chamber is one with a static mixer, not one with the type of discontinuity specifically contemplated by the '172 patent's specification and claims.

208. Probler does not disclose or render obvious "the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part." A person of skill in the would understand that the Probler mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See GRACO\_0215430 at GRACO\_0215433, GRACO\_0215446.* [REDACTED]

[REDACTED]

[REDACTED]

209. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus the Probler flat tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, Probler flat tips are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

210. Because nothing Dr. Rockstraw points to as evidence of Probler discloses this limitation, Probler does not anticipate claim 4 or render the claim 4 obvious.

211. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

212. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part” as required by claim 4. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

213. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part” as required by claim 4. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

5. **Claim 5 - The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.**

214. As discussed above, Probler does not anticipate or render obvious Claim 1 or 4, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 5 is not obvious at least because claims 1 and 4 are not obvious.

215. Probler does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” As explained with regard to claim 4, a person of skill in the would understand that the Probler mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See GRACO\_0215430 at GRACO\_0215433, GRACO\_0215446.* [REDACTED]

[REDACTED]

[REDACTED]

216. As also explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus the Probler flat tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, Probler flat tips are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

217. Because nothing Dr. Rockstraw points to as evidence of Probler discloses this limitation, Probler does not anticipate claim 5 or render the claim 5 obvious.

218. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

219. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice” as required by claim 5. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

220. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part” as required by claim 5. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

## 6. Claim 10

221. Because Probler does not disclose every element of claim 10 and it would not be obvious to a person of skill in the art to modify Probler to practice every element of the claim 10, Probler does not anticipate or render claim 10 obvious. Claim 10 is also not obvious over Probler in view of Probst, the state of the art or GAP, at least because neither the general state of art, Probst, or GAP disclose or render obvious the claimed two-part configuration of claim 10.

222. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

223. Further, Dr. Rockstraw's citation to numerous documents and images of physical products does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 10.

- a. **[10a] a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,**

224. Probler does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Probler’s mixing chamber is one part, and thus does not have a separate “forward part” and “rearward part” as claimed.

225. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶¶ 437) that a person of skill in the art would understand claim 10 as requiring only “an identifiable mixing part and a spraying part.” A person of skill in the art at the time of the

invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

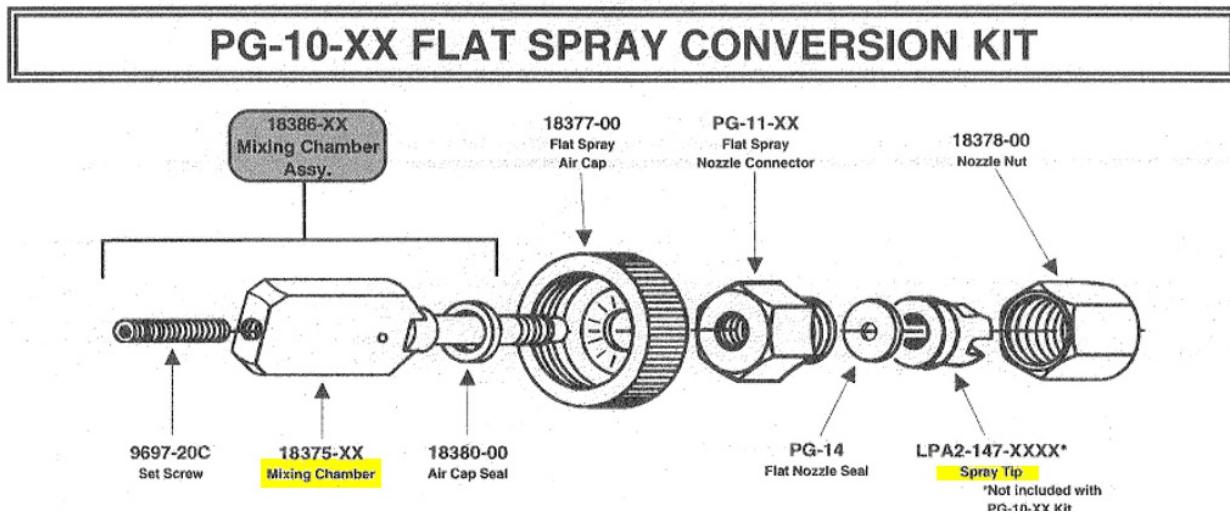
226. Probler's mixing chambers are one part mixing chambers.

A series of eight horizontal black bars of varying lengths, decreasing from top to bottom. The bars are evenly spaced and extend across the width of the frame.

227. [REDACTED]

228. Probler manuals and marketing materials confirm the Probler mixing chamber is one part—it has a single part number and is sold and described as a single unit. *See* GRACO\_0215430 at GRACO\_0215436; *See also* GRACO\_0150162; GRACO\_0151015; GRACO\_0152054; GRACO\_0153065; GRACO\_0152986; GRACO\_0152899; GRACO\_0203598; GRACO\_0215460; CCM\_00013457.

229. Probler flat tip mixing chambers are one part mixing chambers. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in Probler manuals, the tips are additions added in front of the mixing chamber to augment a spray pattern.



GRACO\_0215430 at GRACO\_0215447 (1999 manual); GRACO\_0150162 at GRACO\_0150179 (same in 1998 manual).

230. Additionally, Probler flat spray tips are not cylindrical as required by claim 10. Specifically, claim 10 requires the “*cylindrical* internal mixing chamber.” Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This confirms that the Probler tips are not a second part of the mixing chamber as claimed.

231. A physical inspection of Probler further confirms it is a single part, and thus does not disclose this limitation.

232. Because nothing Dr. Rockstraw points to as evidence of Probler discloses a two-part mixing chamber, Probler does not anticipate the claim or render the claim obvious.

233. “The state of the art” does not disclose or render obvious “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal

mixing chamber to provide mixing and spraying of the mixed plural components.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

234. As explained above and incorporated by reference here, Probst does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

235. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

b. **[10b] said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end,**

236. Probler does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including

an unobstructed central passageway with a cylindrical side wall extending to its forward end.”

As explained above with regard to [10a] Probler does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion” or a “central passageway with a cylindrical side wall extending to its forward end” of such part.

237. “The state of the art” does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

238. As explained above and incorporated by reference here, Probst does not disclose or render obvious a “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

239. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “said rearward part having planar and opposed outer side portions and forming

a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- c. [10c] said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion,

240. Probler does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” As explained above with regard to [10a] Probler does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

241. “The state of the art” does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr.

Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

242. As explained above and incorporated by reference here, Probst does not disclose or render obvious a "said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion" as required by claim 10. Probst discloses a one part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

243. As explained below and incorporated by reference here, GAP does not disclose or render obvious a "said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion" as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

d. **[10d] said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings,**

244. Probler does not disclose or render obvious "said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings." As explained above with regard to [10a]

Probler does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

245. “The state of the art” does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

246. As explained above and incorporated by reference here, Probst does not disclose or render obvious a “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

247. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

e. [10e] said rearward part being adapted at its forward end to accept the insertion of the forward part,

248. Probler does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” As explained above with regard to [10a] Probler does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “rearward part,” it does not have such a part “adapted at its forward end to accept the insertion of the forward part.”

249. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Probler flat tips that Dr. Rockstraw points to are not inserted into the Probler mixing chamber. Indeed, they have the opposite configuration. Probler mixing chambers thus are not adapted at their forward end to accept insertion of anything.

250. “The state of the art” does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

251. As explained above and incorporated by reference here, Probst does not disclose or render obvious a “said rearward part being adapted at its forward end to accept the insertion of the forward part” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

252. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “said rearward part being adapted at its forward end to accept the insertion of the forward part” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- f. **[10f] said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination,**

253. Probler does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” As explained above with regard to [10a] Probler does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “forward part,” it does not have a defined “forward internal mixing chamber portion” or a “a spraying orifice at its forward termination” of such part.

254. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Probler flat tips that Dr. Rockstraw points to do not have a “cylindrical sidewall forming a spraying orifice” as required by the claim. Flat spray tips’ spraying orifices have an elliptical shape.

255. “The state of the art” does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

256. As explained above and incorporated by reference here, Probst does not disclose or render obvious a “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it

would not have been obvious to a person of skill in that art in view of a combination of the two references.

257. As explained below and incorporated by reference here, GAP does not disclose or render obvious a “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or renders it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

g. **[10g] said forward part being adapted at its rear for insertion and joining with the rearward part,**

258. Probler does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” As explained above with regard to [10a] Probler does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Probler does not have a “forward part,” it does not have such a part “adapted at its rear for insertion and joining with the rearward part.”

259. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Probler flat tips that Dr. Rockstraw points to are not inserted into the Probler mixing chamber. Indeed, they have the opposite configuration. Probler flat tips thus are not adapted rear for insertion and joining with the rearward part.

260. “The state of the art” does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by

Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

261. As explained above and incorporated by reference here, Probst does not disclose or render obvious a "said forward part being adapted at its rear for insertion and joining with the rearward part" as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

262. As explained below and incorporated by reference here, GAP does not disclose or render obvious a "said forward part being adapted at its rear for insertion and joining with the rearward part" as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

h. **[10h] the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part,**

263. Probler does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part." As explained above with regard to [10a]-[10g] Probler does not disclose or render obvious a "forward part" or a "rearward part" as claimed. I incorporate my analysis of [10a]-[10g] by reference here. Because Probler does not have a "forward part" or a "rearward part" it does not disclose two "unobstructed central passageway(s)" located for open communication or inserting and joining.

264. “The state of the art” does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

265. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part” as required by claim 10. Probst discloses a one-part mixing chamber. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

266. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part” as required by claim 10. GAP includes a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

i. [10i] the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part,

267. Probler does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” As explained above with regard to [10a]-[10h] Probler does not disclose or render obvious a “forward part” or a “rearward part” as claimed. I incorporate my analysis of [10a]-[10h] by reference here.

268. Probler further does not disclose a mixing chamber—two part or otherwise—with different diameters. [REDACTED]

[REDACTED] At the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to spraying orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

269. I disagree with Dr. Rockstraw (at ¶ 486) that this limitation is inconsistent with claim 10’s requirement that the mixing chamber be unobstructed. As I explained in my opening expert report, a person of skill in the art would not understand the concentric cylinders required by the claims of the ’172 patent as creating obstructions. An “obstructed” mixing chamber is one with a static mixer, not one with the type of discontinuity specifically contemplated by the ’172 patent’s specification and claims.

270. Because Probler specifically discloses a mixing chamber having a single, consistent size I disagree with Dr. Rockstraw (at ¶ 488) that this limitation is inherent in Probler.

[REDACTED]  
[REDACTED]  
[REDACTED] As an initial matter, [REDACTED]

[REDACTED] are not prior art to the '172 patent. Additionally, [REDACTED]  
[REDACTED]

[REDACTED] A person of skill in the art would understand this.

271. "The state of the art" does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part." Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. Prior art mixing chambers were a single, consistent size throughout. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Probler's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

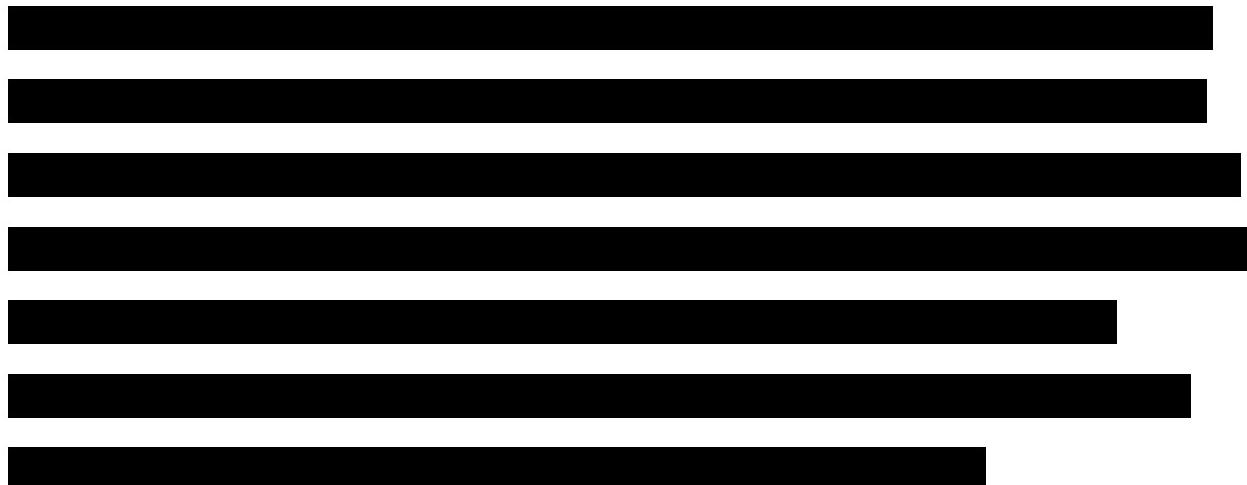
272. As explained above and incorporated by reference here, Probst does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part" as required by claim 10. Probst discloses a one-part mixing chamber with a mixing chamber of a single consistent size. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

273. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part” as required by claim 10. GAP includes a one-part mixing chamber of a single consistent size. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

7. **Claim 11 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.**

274. As discussed above, Probler does not anticipate or render obvious Claim 10, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 11 is not obvious at least because claim 10 is not obvious.

275. Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.”



276. I disagree with Dr. Rockstraw (at ¶ 505) that a person of skill in the art would understand that claim 11 implicitly includes the language “or more.” As Dr. Rockstraw points

out, the specification used that language, but it is not in the claims. A person of skill in the art would therefore give the claims their ordinary meaning, which is “approximately.”

277. Because nothing Dr. Rockstraw points to as evidence of Probler discloses this limitation, Probler does not anticipate claim 11 or render the claim 11 obvious.

278. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g., ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention.

279. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

280. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

8. **Claim 12 - The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.**

281. As discussed above, Probler does not anticipate or render obvious Claim 10, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 12 is not obvious at least because claim 10 is not obvious.

9. **Claim 14 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.**

282. As discussed above, Probler does not anticipate or render obvious Claim 10, nor does Probler in view of the state of the art, Probst, or GAP. I incorporate that discussion by reference here. Claim 14 is not obvious at least because claim 10 is not obvious.

283. Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” As explained with regard to claim 10, a person of skill in the would understand that the Probler mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See GRACO\_0215430 at GRACO\_0215433, GRACO\_0215446.* [REDACTED]

[REDACTED]

[REDACTED]

284. As also explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus the Probler flat tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also

explained above, Probler flat tips are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

285. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

286. As explained above and incorporated by reference here, Probst does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” as required by claim 14. Because neither Probler nor Probst discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

287. As explained below and incorporated by reference here, GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” as required by claim 14. Because neither Probler nor GAP discloses this limitation or render it

obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**E. Zittel Does Not Anticipate or Render Obvious the Claims of the '172 Patent**

288. Dr. Rockstraw proposes the following bases of invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 in view of Zittel: single reference obviousness, obviousness in view of Fusion, and obviousness in view of the state of the art. Rockstraw Op. Rpt. ¶ 7. I address each of Dr. Rockstraw's Zittel-based invalidity theories below.

289. But, as an initial matter, I disagree with Dr. Rockstraw's claim that a person of skill in the art would mix-and-match between printed publications and physical prior art products to arrive at the claimed invention. *E.g.*, Rockstraw Op. Rpt. ¶¶ 523, 524, 526, 529, 533, 536, 539, 540, 543, 545, 549, 551, 553, 555, 557, 558, 562 (suggesting that a person of ordinary skill in the art would look to Probst, Probler, Fusion, and GAP). Dr. Rockstraw identifies no specific reason that would have motivated a person of skill in the art to modify the Zittel reference in view of another to achieve each of the claim limitations for which he generically uses the language. A person of ordinary skill would not have been motivated to make such changes, as outlined in Section X.

**1. Claim 1**

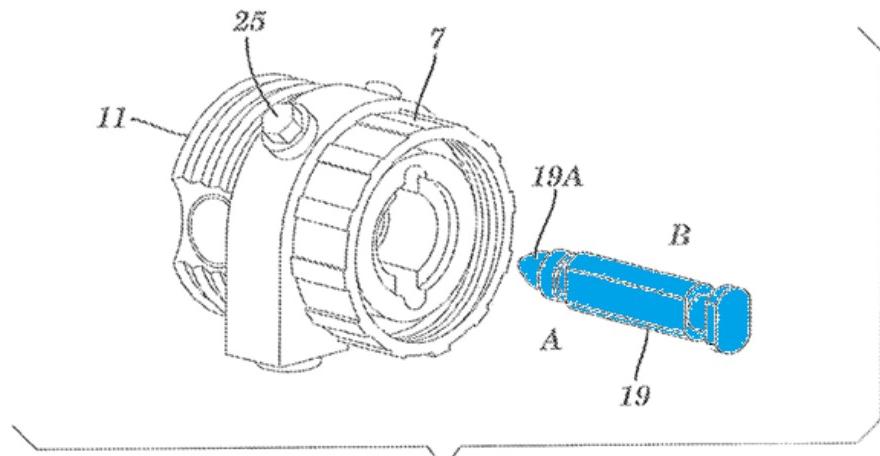
290. Because Zittel does not disclose every element of claim 1 and it would not be obvious to a person of skill in the art to modify Zittel to practice every element of the claim 1, Zittel does not render claim 1 obvious. Claim 1 is also not obvious over Zittel in view of the state of the art or in view of Fusion, at least because neither the general state of the art nor Fusion disclose or render obvious the claimed two-part configuration of claim 1.

291. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to

the claimed configuration and would not have reasonably expected such a modification to be successful.

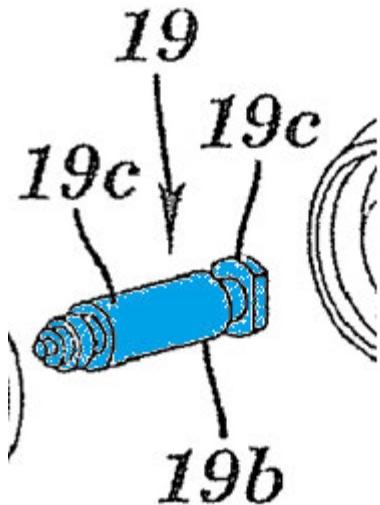
- a. [1a] **the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice**

292. Zittel does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice.” Zittel describes a single component—mixing chamber 19—as containing its mixing chamber and thus does not have a “forward part” and a “rearward part” as claimed. Zittel at 2:65-3:4. Mixing chamber 19 is highlighted in the below annotated Figures 5 and 7 from the Zittel patent.



**FIG. 5**

Zittel at Fig. 5 (annotated).



Zittel at Fig. 7 (annotated).

293. I understand that that Patent Trial and Appeal Board declined to institute inter partes review of the '172 patent based, in part, on its finding that "Zittel does not include any disclosure or suggestion that the mixing chamber (19) is formed from two or more pieces of material." IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934942-43. I agree with the Board's analysis and conclusion about the disclosure of Zittel.

294. Zittel's "tip" 19A is not a second, separate part the of "mixing chamber 19." Zittel's "mixing chamber" is a single piece "made of a hardened metal material such 440C stainless steel." Zittel at 3:17-20. The features of mixing chamber 19 are thus all formed from a single machined piece. See Zittel at 2:65-3:4 (describing features of mixing chamber 19).

295. As discussed above and incorporated here, I also disagree with Dr. Rockstraw (at ¶¶ 560, 565, 570, 575) that a person of skill in the art would understand claim 1 as requiring only "a singular element with two identifiable parts." A person of skill in the art at the time of the

invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

296. Zittel's discussion of changeable tips for mechanical purge embodiments of Zittel's invention also does not disclose or render obvious the claimed two-part mixing chamber. *See* Zittel at 3:55-4:25, Figs. 13-17. A person of skill in the art would not incorporate the design of a mechanical purge mixing chamber into the design of an air purge mixing chamber as they are fundamentally different in operation. Air purge mixing chambers are purged with air while mechanical purge chambers are purged with a valving rod. This difference results in substantially different characteristics and considerations for designing mixing chambers.

297. In my opinion, Dr. Rockstraw's dissection (at ¶¶ 558-579) of the various parts of the claim requirement he labels "1[a]" ("said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice") is improper. The claim element must be read together as whole because it describes a single configuration wherein a cylindrical mixing chamber continues through a two-part mixing dispensing element, from the admission passages to the dispensing orifice. A person of skill in the art would understand this mixing chamber configuration as distinctly different from Zittel's disclosure, wherein the mixing chamber continues through a single part.

298. "The state of the art" does not disclose or render obvious "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages

through the two parts to the dispensing orifice.” Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

299. As explained below and incorporated by reference here, Fusion does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice” as required by claim 1. Specifically, Fusion includes a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

b. **[1b] each of the admission passages having a cylindrical sidewall with a lesser diameter than the cylindrical sidewall of the mixing chamber**

300. Zittel does not disclose or render obvious a “each of the admission passages having a cylindrical sidewall with a lesser diameter than the cylindrical sidewall of the mixing chamber.” Zittel does not disclose any specific dimensions for its air purge admission passages or mixing chamber. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 580-582.

c. [1c] and each of the cylindrical sidewalls of the admission passages crossing and being tangent to the cylindrical sidewall of the mixing chamber at its intersection with the cylindrical sidewall of the mixing chamber,

301. Zittel does not disclose or render obvious a “each of the cylindrical sidewalls of the admission passages crossing and being tangent to the cylindrical sidewall of the mixing chamber at its intersection with the cylindrical sidewall of the mixing chamber.” Zittel’s only statement about its admission passages is that it has “two impingement holes 19a located diametrically opposite one another.” Zittel at 2:65-66. Diametrically opposed admission passages are not tangent. Dr. Rockstraw identifies no contrary such disclosure in Zittel. *See* Rockstraw Op. Rpt. ¶¶ 583-587.

d. [1d] the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross-sectional area of the dispensing orifice

302. Zittel does not disclose or render obvious “the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross-sectional area of the dispensing orifice.” Zittel does not disclose any specific dimensions for its admissions passages or its dispensing orifice. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure in Zittel. *See* Rockstraw Op. Rpt. ¶¶ 588-592.

2. **Claim 2 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.**

303. As discussed above, Zittel does not render obvious claim 1, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 2 is not obvious at least because claim 1 is not obvious.

304. Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their

intersections.” Zittel does not disclose any specific dimensions for its admissions passages or its mixing chamber. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 593-594.

305. As explained with regard to Probst and Probler, a ratio of about 1.4 was the common configuration at the time of the ’172 patent. Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the dispensing orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See e.g.*, Rockstraw Op. Rpt. ¶ 206. Thus, spray foam guns could and did operate without the claimed configuration and, in fact, such configurations could be desirable in certain applications.

306. “The state of the art” does not render this limitation obvious. Dr. Rockstraw points to nothing in the art disclosing “the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” His general statement that relationships between sizes of admission passages and mixing chambers were known does not establish that the particular claimed relationship was known or obvious to a person of skill in the art.

307. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

3. **Claim 3 - The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.**

308. As discussed above, Zittel does not render obvious claim 1, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 3 is not obvious at least because claim 1 is not obvious.

309. Zittel does not disclose or render obvious “the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.” Zittel does not disclose offsets, much less any specific offsets, for its admission passages. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 596-598.

4. **Claim 4 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.**

310. As discussed above, Zittel does not render obvious claim 1, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 4 is not obvious at least because claim 1 is not obvious.

311. Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” Zittel does not disclose dimensions for its mixing chamber or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Zittel. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 599-601.

312. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised

two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

313. And as explained below and incorporated by reference here, Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” Because neither Zittel nor Fusion discloses this limitation, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**5. Claim 5 - The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.**

314. As discussed above, Zittel does not render obvious claim 1 or claim 4, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 5 is not obvious at least because claim 1 and claim 5 are not obvious.

315. Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” Zittel does not disclose dimensions for its mixing chamber or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Zittel. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 602-604.

316. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing

chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

317. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

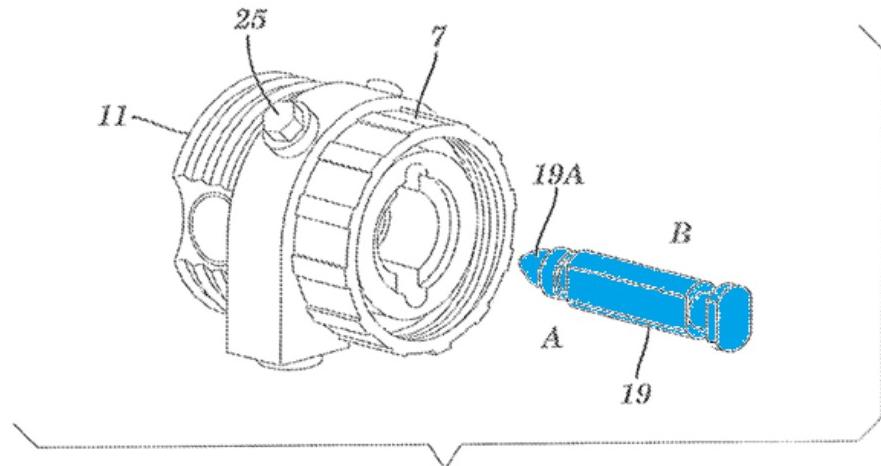
#### 6. **Claim 10**

318. Because Zittel does not disclose every element of claim 10 and it would not be obvious to a person of skill in the art to modify Zittel to practice every element of the claim 10, Zittel does not render claim 10 obvious. Claim 10 is also not obvious over Zittel in view of the state of the art or in view of Fusion, at least because neither the general state of the art nor Fusion disclose or render obvious the claimed two-part configuration of claim 10.

319. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

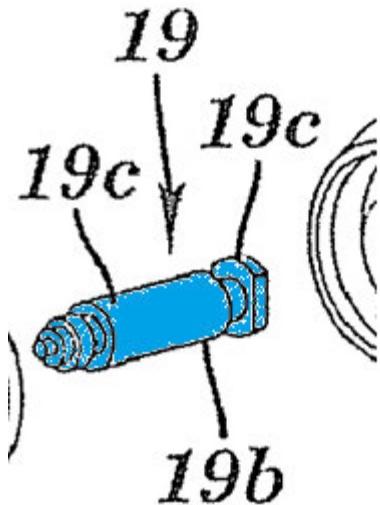
- a. [10a] a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,

320. Zittel does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Zittel describes a single component—mixing chamber 19—as containing its mixing chamber, and thus does not have a separate “forward part” and “rearward part” as claimed. Zittel at 2:65-3:4. Mixing chamber 19 is highlighted in the below annotated Figures 5 and 7 from the Zittel patent.



**FIG. 5**

Zittel at Fig. 5 (annotated).



Zittel at Fig. 7 (annotated).

321. I understand that that Patent Trial and Appeal Board declined to institute inter partes review of the '172 patent based, in part, on its finding that "Zittel does not include any disclosure or suggestion that the mixing chamber (19) is formed from two or more pieces of material." IPR2022-00635, *Decision Denying Institution, Paper 8* (August 18, 2022), GRACO\_0934922 at GRACO\_0934942-43. I agree with the Board's analysis and conclusion about the disclosure of Zittel.

322. Zittel's "tip" 19A is not a second, separate part the of "mixing chamber 19." Zittel's "mixing chamber" is a single piece "made of a hardened metal material such 440C stainless steel." Zittel at 3:17-20. The features of mixing chamber 19 are thus all formed from a single machined piece. See Zittel at 2:65-3:4 (describing features of mixing chamber 19).

323. As discussed above and incorporated here, I also disagree with Dr. Rockstraw (at ¶ 609) that a person of skill in the art would understand claim 10 as requiring only "a singular element with two identifiable parts." A person of skill in the art at the time of the invention

would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

324. Zittel's discussion of changeable tips for mechanical purge embodiments of Zittel's invention also does not disclose or render obvious the claimed two-part mixing chamber. *See* Zittel at 3:55-4:25, Figs. 13-17. A person of skill in the art would not consider the design of a mechanical purge mixing chamber to be relevant to the design of an air purge mixing chamber as they are fundamentally different in operation. Air purge mixing chambers are purged with air while mechanical purge chambers are purged with a valving rod. This difference results in substantially different characteristics and considerations for designing mixing chambers.

325. "The state of the art" does not disclose or render obvious "a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components." Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

326. As explained below and incorporated by reference here, Fusion does not disclose or render obvious a "a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components" as required by claim 1. Specifically, Fusion includes a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious,

it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- b. [10b] said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end,

327. Zittel does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Zittel does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion” or a “central passageway with a cylindrical side wall extending to its forward end” of such part.

328. “The state of the art” does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

329. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming

a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- c. **[10c] said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion,**

330. Zittel does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Zittel does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

331. Zittel further not disclose or render obvious a “cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Zittel’s only statement about its admission passages is that it has “two impingement holes 19a located diametrically opposite one another.” Zittel at 2:65-66. Diametrically opposed admission passages are not tangent.

332. “The state of the art” does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission

passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

333. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

d. **[10d] said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings,**

334. Zittel does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Zittel does not have a “rearward part,” it does not have a

“rearward internal mixing chamber portion.” Zittel further does not disclose a mixing chamber portion with a greater diameter than the diameters of admissions openings. Zittel does not disclose any specific dimensions for its air purge admission passages or mixing chamber. *See generally* Zittel.

335. “The state of the art” does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

336. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

e. **[10e] said rearward part being adapted at its forward end to accept the insertion of the forward part,**

337. Zittel does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “rearward part” as claimed. I incorporate my

analysis of [10a] by reference here. Because Zittel does not have a “rearward part,” it does not have such a part “adapted at its forward end to accept the insertion of the forward part.” Indeed, Zittel describes a one-piece mixing chamber and makes no reference to a rearward part adapted to receive a forward part. I further note that the portion of Zittel Figure 5 Dr. Rockstraw points to (at ¶ 631) does not show any part adapted at its forward end. Dr. Rockstraw’s annotations are merely two abutting colors on a singular machined piece of steel without any adaptation whatsoever.

338. “The state of the art” does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

339. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

f. **[10f] said forward part forming a forward internal mixing chamber portion including an unobstructed central**

**passageway with a cylindrical sidewall forming a spraying orifice at its forward termination,**

340. Zittel does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Zittel does not have a “forward part,” it does not have a “forward internal mixing chamber portion” or a “a spraying orifice at its forward termination” of such part.

341. “The state of the art” does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

342. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it

would not have been obvious to a person of skill in that art in view of a combination of the two references.

g. **[10g] said forward part being adapted at its rear for insertion and joining with the rearward part,**

343. Zittel does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” As explained above with regard to [10a] Zittel does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Zittel does not have a “forward part,” it does not have such a part “adapted at its rear for insertion and joining with the rearward part.” Indeed, Zittel describes a one-piece mixing chamber and makes no reference to a forward part adapted to insert and join with a rearward part. I further note that the portion of Zittel Figure 5 Dr. Rockstraw points to (at ¶ 637) does not show any part adapted at its rear for insertion. Dr. Rockstraw’s annotations are merely two abutting colors on a singular machined piece of steel without any adaptation whatsoever.

344. “The state of the art” does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

345. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the

rearward part” as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

h. **[10h] the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part,**

346. Zittel does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part.” As explained above with regard to [10a]-[10g] Zittel does not disclose or render obvious a “forward part” or a “rearward part” as claimed. I incorporate my analysis of [10a]-[10g] by reference here. Because Zittel does not have a “forward part” or a “rearward part” it does not disclose two “unobstructed central passageway(s)” located for open communication, or inserting and joining.

347. I disagree with Dr. Rockstraw that this limitation is “inherent” in Zittel. I understand that for a reference to inherently disclose a claim element it must necessarily be present in the reference, not merely probably or possibly present. Two separate mixing chamber portions, configured to be joined as claimed, was not known in the prior art and thus is not inherent in Zittel.

348. “The state of the art” does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part as claimed.

None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

349. As explained below and incorporated by reference here, Fusion does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part" as required by claim 10. Fusion has a one-part mixing chamber. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- i. **[10i] the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part,**

350. Zittel does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part." As explained above with regard to [10a]-[10h] Zittel does not disclose or render obvious a "forward part" or a "rearward part" as claimed. I incorporate my analysis of [10a]-[10h] by reference here.

351. Zittel further does not disclose a mixing chamber—two part or otherwise—with different diameters. Zittel does not disclose dimensions for its mixing chamber or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Zittel. Dr. Rockstraw identifies no contrary disclosure. *See* Rockstraw Op. Rpt. ¶¶ 644-646. At the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to spraying orifice. This single, consistent size allowed the use

of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

352. “The state of the art” does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part as claimed. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Zittel’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

353. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part” as required by claim 10. Fusion has a one-part mixing chamber with a single consistent diameter throughout. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- j. [10j] **the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross sectional area of the spraying orifice.**

354. Zittel does not disclose or render obvious “the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross sectional area of the

spraying orifice.” Zittel does not disclose any specific dimensions for its admissions passages or its spraying orifice. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. See Rockstraw Op. Rpt. ¶¶ 647-651.

7. **Claim 11 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.**

355. As discussed above, Zittel does not render obvious claim 10, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 11 is not obvious at least because claim 10 is not obvious.

356. Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.” Zittel does not disclose any specific dimensions for its admissions passages or its mixing chamber. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 652-654.

357. As explained with regard to Probst and Probler, a ratio of about 1.4 was the common configuration at the time of the ’172 patent. Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the dispensing orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See e.g.*, Rockstraw Op. Rpt. ¶ 206. Thus, spray foam guns could and did operate without the claimed configuration and, in fact, such configurations could be desirable in certain applications.

358. The article Dr. Rockstraw cites, (at ¶ 593) relating to theoretical and experimental considerations for “Flash NanoPrecipitation” and “micromixing,” as Dr. Rockstraw notes, does not suggest a ratio of 1.6. CCM\_00312797.

359. “The state of the art” does not render this limitation obvious. Dr. Rockstraw points to nothing in the art disclosing “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.” His general statement that relationships between sizes of admission passages and mixing chambers were known does not establish that the particular claimed relationship was known.

360. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Fusion has a one-part mixing chamber and does not disclose the ratio of 1.6 required by claim 11. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

8. **Claim 12 - The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.**

361. As discussed above, Zittel does not render obvious claim 10, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 12 is not obvious at least because claim 10 is not obvious.

362. Zittel does not disclose or render obvious “the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical

sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.” Zittel does not disclose offsets, much less any specific offsets, for its admission passages. *See generally* Zittel. Dr. Rockstraw identifies no such disclosure. *See* Rockstraw Op. Rpt. ¶¶ 655-657.

9. **Claim 14 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.**

363. As discussed above, Zittel does not render obvious claim 10, nor does Zittel in view of the state of the art or Fusion. I incorporate that discussion by reference here. Claim 14 is not obvious at least because claim 10 is not obvious.

364. Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” Zittel does not disclose dimensions for its mixing chamber or suggest a mixing chamber with a smaller diameter at the forward than rearward part. *See generally* Zittel. Dr. Rockstraw identifies no contrary disclosure. See Rockstraw Op. Rpt. ¶¶ 658-660.

365. “The state of the art” does not render “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” obvious. Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts, and thus did not disclose or render obvious a rearward part and a forward part with different sizes as claimed. None of the art discussed by Dr. Rockstraw is to the contrary.

366. As explained below and incorporated by reference here, Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” as required by claim 10. Fusion has a one-part mixing chamber with a single consistent diameter throughout. Because neither Zittel nor Fusion discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**F. Fusion Does Not Anticipate or Render Obvious the Claims of the '172 Patent**

367. Dr. Rockstraw proposes the following bases of invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 in view of Fusion: anticipation, single reference obviousness, obviousness in view of Zittel, and obviousness in view of the state of the art. Rockstraw Op. Rpt. ¶ 7. I address each of Dr. Rockstraw's Fusion-based invalidity theories below.

368. As discussed above, the Fusion mixing chamber is a one-part mixing chamber, consistent with all air purge mixing chambers known at the time of the invention. *See* Anderson Tr. 17:6-19:2. Examples of Fusion and Fusion mixing chambers are depicted below.



369. As also discussed above, Fusion mixing chambers could be fitted with a variety of optional pattern augmentation spray tips. Examples of these tips are depicted below.



GRACO\_0007952 at GRACO\_0007967.

370. Pattern augmentation spray tips are added to the front of the mixing chamber and are not themselves a part of the mixing chamber. A person of skill in the art at the time of the invention understood the difference—they understood what was meant by “mixing chamber” as distinct from “tips.” Mixing of the plural components happens within the mixing chamber and pattern augmentation spray tips form or change the spray pattern as the mixed components are dispensed. Manuals and marketing materials for the Fusion gun are consistent with the recognized distinction between mixing chambers and tips at the time of the invention. *See* GRACO\_0009896 at GRACO\_0009915-16; CCM\_00013459 at CCM\_00013463, CCM\_00013466

371. I disagree with Dr. Rockstraw’s opinion that the numerous references and physical products he points to from several different years represent a single disclosure of a “wholistic” Fusion gun. Rockstraw Op. Rpt. ¶¶ 663-664. A person of skill in the art at the time of the invention would have understood that certain Fusion mixing chambers were usable with certain proportioners for certain applications and with certain optional spray pattern

augmentation tips. They would not have known to change the individual sizes of individual passages within those mixing chambers to achieve a result, as changing one aspect would impact the entire system.

372. Because Dr. Rockstraw does not identify which specific references and products he is relying on for his opinions on the invalidity of the claims over the Fusion, it is my opinion that he has failed to adequately show that any single reference or particular combination of references invalidates the claims. Additionally, to the extent Dr. Rockstraw relies on materials dated after November 15, 2004, I understand these items are not prior art and thus are not properly considered in the obviousness analysis. *See, e.g.,* GRACO\_0004921 at GRACO\_0004968 (revision dated May 2016); GRACO\_0008638 at GRACO\_0008683 (revision dated December 2004); GRACO\_0009896 at GRACO\_0009919 (revision dated September 2016).

373. To the extent that Dr. Rockstraw relies on engineering drawings from Graco in support of this opinions, I do not agree that a person of skill in the art would have considered these materials as they were not public at the time of invention. Because the drawings were not public, a person of skill in the art would not and could not have considered them and, I understand, they are not prior art. I nevertheless address them below.

374. Further, I disagree with Dr. Rockstraw's claim that a person of skill in the art would mix-and-match between printed publications and physical prior art products to arrive at the claimed invention. *E.g.,* Rockstraw Op. Rpt. ¶¶ 668, 671, 672, 678, 684, 687, 690, 693, 697, 701, 704, 705, 708, 710 , 712 (suggesting that a person of ordinary skill in the art would look to "Fusion literature," Zittel, GAP, and Probler). Dr. Rockstraw identifies no specific reason that would have motivated a person of skill in the art to modify Fusion in view of another

reference to achieve each of the claim limitations for which he generically uses the language. A person of ordinary skill would not have been motivated to make such changes, as outlined in Section X.

### 1. Claim 1

375. Because Fusion does not disclose every element of claim 1 and it would not be obvious to a person of skill in the art to modify Fusion to practice every element of the claim 1, Fusion does not anticipate or render claim 1 obvious. Claim 1 is also not obvious over Fusion in view of Zittel or the state of the art, at least because neither the general state of art nor Zittel disclose or render obvious the claimed two-part configuration of claim 1.

376. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

377. Further, Dr. Rockstraw's citation to numerous documents and physical products does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 1.

- a. [1a] **the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice,**

378. Fusion does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the

two parts to the dispensing orifice.” Fusion’s mixing chamber is one part and thus does not have a “forward part” and a “rearward part” as claimed.

379. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶ 714) that a person of skill in the art would understand claim 1 as requiring only “an identifiable mixing part and a dispensing part.” A person of skill in the art at the time of the invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts. I disagree with Dr. Rockstraw that a person of skill in the art would attribute any meaning or significance to the external shape of the single part metal piece. I also disagree with Dr. Rockstraw a person of skill in the art would understand Graco’s naming convention for its one-part mixing chambers as suggesting two separate parts.

380. I also disagree, as explained above and incorporated here, with Dr. Rockstraw (at ¶ 716) that a person of skill in the art would understand the “unibody” mixing chambers of Sinders and Probst as including two parts. Sinders and Probst, and indeed all mixing chambers existing at the time of the invention, were one part mixing chambers.

381. A person of skill in the art would understand that Fusion’s mixing chambers are one part mixing chambers. The Fusion engineering drawings, which are not prior art as they were not public at the time of the invention, confirm that the Fusion mixing chamber was formed in a single machined piece of metal.

382. Fusion marketing materials confirm the Fusion mixing chamber is one part—it has a single part number and is sold and described as a single unit. *See* CCM\_00013459 at CCM\_00013463, CCM\_00013466; *see also* GRACO\_0009896 at GRACO\_0009915-16.

383. Dr. Rockstraw (at ¶ 715) misunderstands the “theory of operation” discussion in the Fusion manual. *E.g.*, GRACO\_0007952 at GRACO\_0007974.

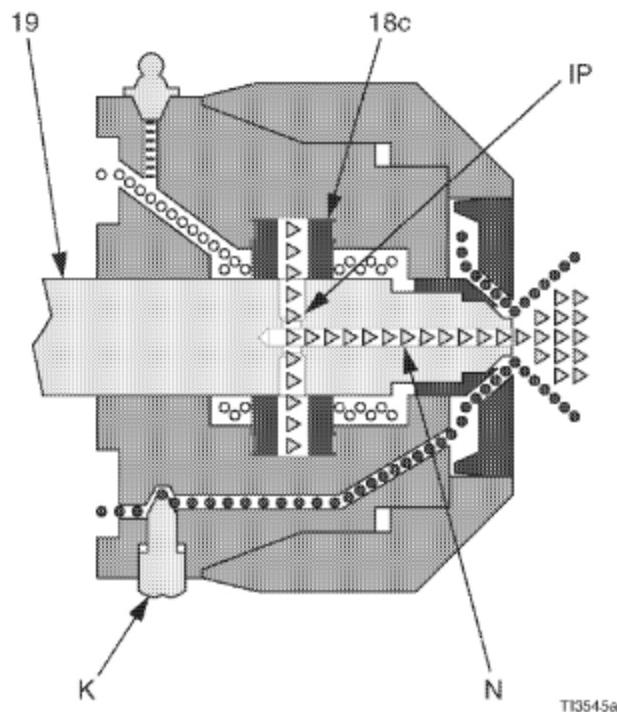
### Gun Triggered (Fluid Spraying)

Mix chamber (19) moves back, shutting off purge air flow. Impingement ports (IP) align with fluid ports of side seals (18c), allowing fluid to flow through mix chamber nozzle (N).

See page 11 to adjust cleanoff air valve (K).



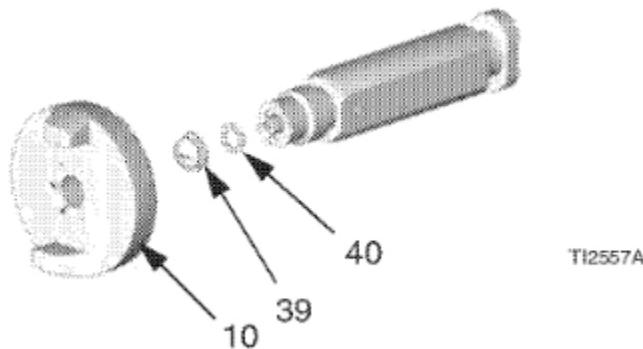
Flow paths are not shown to scale, for clarity.



GRACO\_0007952 at GRACO\_0007974. Dr. Rockstraw's misunderstanding appears to stem from the difference between the language used in the manual versus the claim language. A person of skill in the art at the time of the invention would understand that Graco labeled the entire mixing and dispensing element as "mixing chamber" 19. It further labeled the admission passages as "IP" or "impingement ports" and the entire one-part internal mixing chamber as "N"

or “nozzle.” The “N” arrow is not pointing to some transition point within the internal mixing chamber to designate a separation, it is labeling the entire internal mixing chamber as a “nozzle.” A person of skill in the art would understand this and understand that, in the words of the patent, “N” is the Fusion’s internal mixing chamber—and is labeling the entire one-part chamber. The Fusion manual’s theory of operation plainly shows a mixing chamber made up of only one part. This is confirmed by the manual’s discussion of cleaning “mixing chamber nozzle” with a drill bit. GRACO\_0007952 at GRACO\_0007970, GRACO\_0007985; *see also* GRACO\_0007952; GRACO\_0008378 at GRACO\_0008397; GRACO\_0008638 at GRACO\_0008657. The manual describes using a drill bit to clear clogs in the nozzle. A person of skill in the art would understand drill bits are used to clear the entire internal mixing chamber, not some portion ending at “N” in the figure. Additionally, the manual figure separately states a “nozzle orifice size” to refer to the orifice formed at the end of the nozzle. *E.g.*, GRACO\_0007952 at GRACO\_0007985.

384. A person of skill in the art would also understand that Fusion flat tip mixing chambers are one part mixing chambers. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in Fusion manuals, the tips are additions added in front of the mixing chamber to augment a spray pattern.



GRACO\_0007952 at GRACO\_0007967; *see also* GRACO\_0004921; GRACO\_0008378; GRACO\_0008638. The manual further confirms that the “mix tip” is a separate part from the “mixing chamber nozzle,” which as explained refers to the internal mixing chamber of the Fusion. GRACO\_0007952 at GRACO\_0007972. And, as to Fusion extension tips, the Fusion manual specifically lists separate “recommended” mixing chambers for use with the tips.

GRACO\_0007952 at GRACO\_0007988; *see also* GRACO\_0007952; GRACO\_0008378; GRACO\_0008638.

385. Additionally, Fusion flat spray tips are not cylindrical as required by claim 1. Specifically, claim 1 requires the “*cylindrical* mixing chamber” extend “from the admission passages through the two parts to the dispensing orifice.” Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This confirms that the Fusion tips are not a second part of the mixing chamber as claimed.

386. A physical inspection of Fusion further confirms it is a single part mixing chamber, and thus does not disclose this limitation.

387. In my opinion, Dr. Rockstraw’s dissection (at ¶¶ 713-726) of the various parts of the claim requirement he labels “1[a]” (“said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice”) is improper. The claim element must be read together as whole because it describes a single configuration wherein a cylindrical mixing chamber continues through a two-part mixing dispensing element, from the admission passages to the dispensing orifice. A person

of skill in the art would understand this mixing chamber configuration as distinctly different from Fusion, wherein the mixing chamber continues through a single part.

388. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses a two-part mixing chamber, Fusion does not anticipate the claim or render the claim obvious.

389. “The state of the art” does not disclose or render obvious “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice.” Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

390. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice” as required by claim 1. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

2. **Claim 2 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.**

391. As discussed above, Fusion does not anticipate or render obvious Claim 1, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 2 is not obvious at least because claim 1 is not obvious.

392. Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

393. I disagree with Dr. Rockstraw (at ¶ 744) that a person of skill in the art would understand that claim 2 implicitly includes the language “or more.” As Dr. Rockstraw points out, the specification used that language, but it is not in the claims. A person of skill in the art would therefore give the claims their ordinary meaning, which is “approximately.”

394. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses this limitation, Fusion does not anticipate claim 2 or render the claim 2 obvious.

395. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g., ¶ 210),

the Probst patent and Probler gun had been used for decades at the time of the invention and at the time the Fusion was introduced.

396. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections” as required by claim 2. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**3.     3.     Claim 3 - The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.**

397. As discussed above, Fusion does not anticipate or render obvious Claim 1, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 3 is not obvious at least because claim 1 is not obvious.

**4.     4.     Claim 4 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.**

398. As discussed above, Fusion does not anticipate or render obvious Claim 1, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 4 is not obvious at least because claim 1 is not obvious.

399. I disagree with Dr. Rockstraw (at ¶ 752) that claim 4 is inconsistent with claim 1’s requirement that the mixing chamber be unobstructed. As I explained in my opening expert report, a person of skill in the art would not understand the concentric cylinders requires by the claims of the ’172 patent as creating obstructions. An “obstructed” mixing chamber is one with a static mixer, not one with the type of discontinuity specifically contemplated by the ’172 patent’s specification and claims.

400. Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” A person of skill in the would understand that the Fusion mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See* GRACO\_0007952 at GRACO\_0007970; GRACO\_0008378 at GRACO\_0008397; GRACO\_0008638 at GRACO\_0008657; GRACO\_0004921 at GRACO\_0004943.

[REDACTED]

[REDACTED]

[REDACTED]

401. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus Fusion flat tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, Fusion flat tips are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

402. Because Fusion mixing chambers have a single size throughout, I disagree with Dr. Rockstraw (at ¶ 754) that this limitation is inherent in Fusion.

403. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses this limitation, Fusion does not anticipate claim 4 or render the claim 4 obvious.

404. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing

chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

405. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part” as required by claim 4. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

5. **Claim 5 - The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.**

406. As discussed above, Fusion does not anticipate or render obvious Claims 1 or 4, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 5 is not obvious at least because claims 1 and 4 are not obvious.

407. Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” As explained with regard to claim 4, a person of skill in the would understand that the Fusion mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See* GRACO\_0007952 at GRACO\_0007970; GRACO\_0008378 at GRACO\_0008397; GRACO\_0008638 at GRACO\_0008657; GRACO\_0004921 at GRACO\_0004943. [REDACTED]

[REDACTED]

[REDACTED]

408. As also explained above and incorporated here, pattern augmentation spray tips, including extension tips, are not part of the mixing chamber and thus the Fusion extension tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.”



409. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses this limitation, Fusion does not anticipate claim 5 or render the claim 5 obvious.

410. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

411. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice” as required by claim 5. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

## 6. Claim 10

412. Because Fusion does not disclose every element of claim 10 and it would not be obvious to a person of skill in the art to modify Fusion to practice every element of the claim 10, Fusion does not anticipate or render claim 10 obvious. Claim 10 is also not obvious over Fusion in view of Zittel or the state of the art, at least because neither the general state of art nor Zittel disclose or render obvious the claimed two-part configuration of claim 10.

413. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

414. Further, Dr. Rockstraw's reference to numerous of documents and physical products does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 10.

- a. **[10a] a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,**

415. Fusion does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Fusion’s mixing chamber is one part, and thus does not have a separate “forward part” and “rearward part” as claimed.

416. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶ 764) that a person of skill in the art would understand claim 10 as requiring only “an identifiable mixing part and a dispensing part.” A person of skill in the art at the time of the

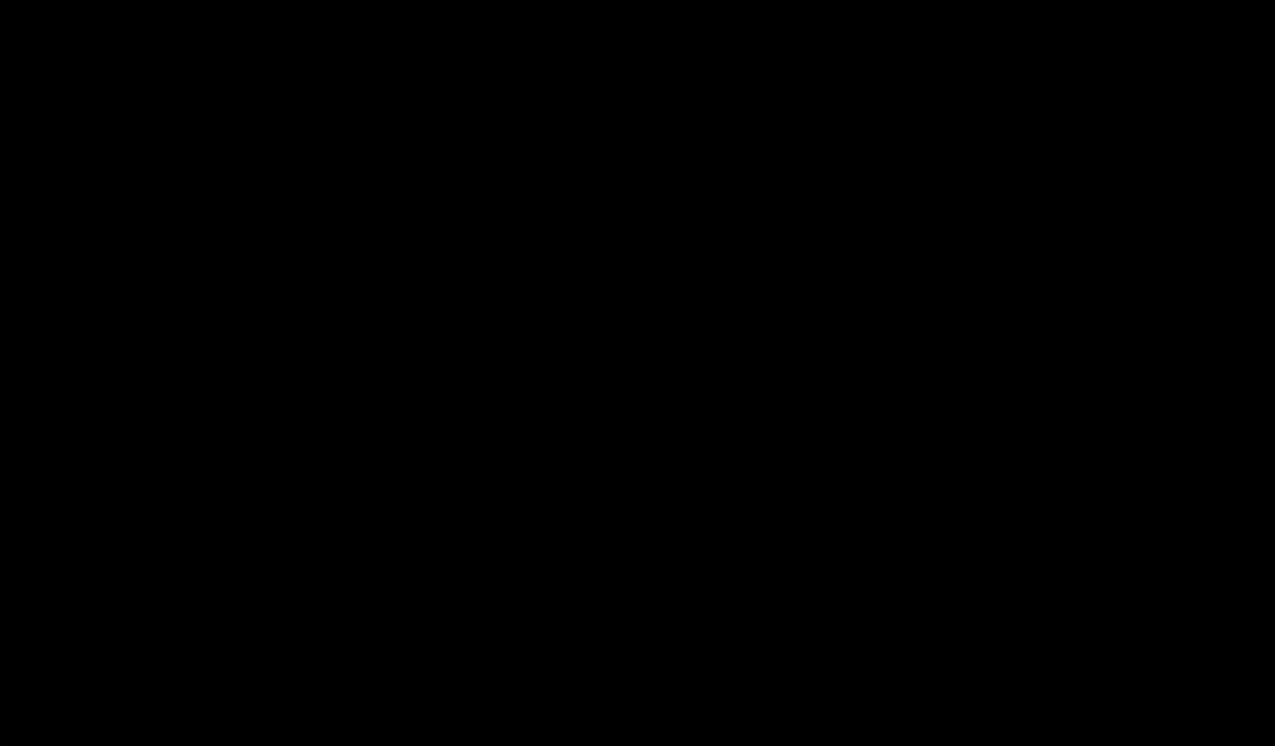
invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts. I disagree with Dr. Rockstraw that a person of skill in the art would attribute any meaning or significance to the external shape of the single part metal piece. I also disagree with Dr. Rockstraw a person of skill in the art would understand Graco's naming convention for its one-part mixing chambers as suggesting two separate parts.

417. I also disagree, as explained above and incorporated here, with Dr. Rockstraw (at ¶ 766) that a person of skill in the art would understand the "unibody" mixing chambers of Sinders and Probst as including two parts. Sinders and Probst, and indeed all mixing chambers existing at the time of the invention, were one part mixing chambers.

418. A person of skill in the art would understand that Fusion's mixing chambers are one part mixing chambers. [REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

419. Fusion marketing materials confirm the Fusion mixing chamber is one part—it has a single part number and is sold and described as a single unit. *See* CCM\_00013459 at CCM\_00013463, CCM\_00013466; *see also* GRACO\_0009896 at GRACO\_0009915-16.

420. Dr. Rockstraw (at ¶ 765) misunderstands the “theory of operation” discussion in the Fusion manual. *E.g.*, GRACO\_0007952 at GRACO\_0007974.

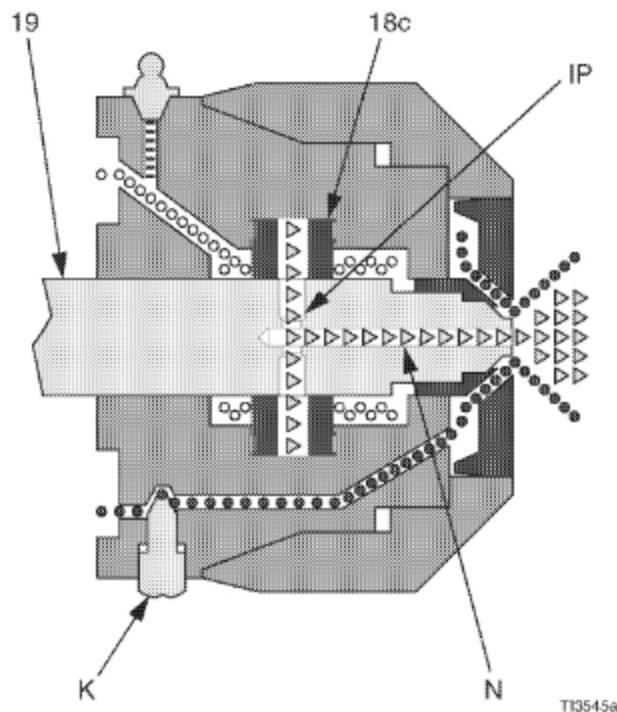
### Gun Triggered (Fluid Spraying)

Mix chamber (19) moves back, shutting off purge air flow. Impingement ports (IP) align with fluid ports of side seals (18c), allowing fluid to flow through mix chamber nozzle (N).

See page 11 to adjust cleanoff air valve (K).



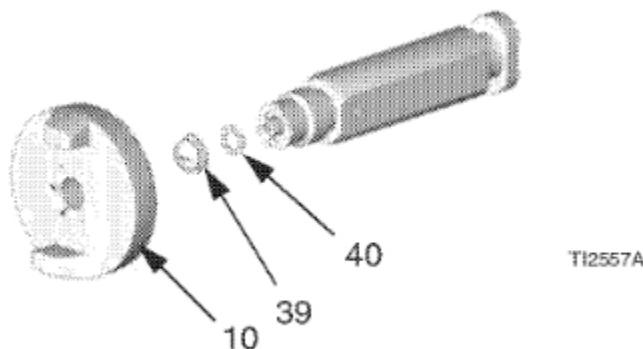
Flow paths are not shown to scale, for clarity.



GRACO\_0007952 at GRACO\_0007974. Dr. Rockstraw's misunderstanding appears to stem from the difference between the language used in the manual versus the claim language. A person of skill in the art at the time of the invention would understand that Graco labeled the entire mixing and dispensing element as "mixing chamber" 19. It further labeled the admission passages as "IP" or "impingement ports" and the entire one-part internal mixing chamber as "N"

or “nozzle.” The “N” arrow is not pointing to some transition point within the internal mixing chamber to designate a separation, it is labeling the entire internal mixing chamber as a “nozzle.” A person of skill in the art would understand this and understand that, in the words of the patent, “N” is the Fusion’s internal mixing chamber—and is labeling the entire one-part chamber. The Fusion manual’s theory of operation plainly shows a mixing chamber made up of only one part. This is confirmed by the manual’s discussion of cleaning “mixing chamber nozzle” with a drill bit. GRACO\_0007952 at GRACO\_0007970, GRACO\_0007985; *see also* GRACO\_0007952; GRACO\_0008378; GRACO\_0008638. The manual describes using a drill bit to clear clogs in the nozzle. A person of skill in the art would understand drill bits are used to clear the entire internal mixing chamber, not some portion ending at “N” in the figure. Additionally, the manual figure separately states a “nozzle orifice size” to refer to the orifice formed at the end of the nozzle.

421. A person of skill in the art would also understand that Fusion flat tip mixing chambers are one part mixing chambers. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in Fusion manuals, the tips are additions added in front of the mixing chamber to augment a spray pattern.



GRACO\_0007952 at GRACO\_0007967; *see also* GRACO\_0004921; GRACO\_0008378; GRACO\_0008638. The manual further confirms that the “mix tip” is a separate part from the “mixing chamber nozzle,” which as explained refers to the internal mixing chamber of the Fusion. GRACO\_0007952 at GRACO\_0007972. And, as to Fusion extension tips, the Fusion manual specifically lists separate “recommended” mixing chambers for use with the tips.

GRACO\_0007952 at GRACO\_0007988; *see also* GRACO\_0008378; GRACO\_0008638.

422. Additionally, Fusion flat spray tips are not cylindrical as required by claim 10. Specifically, claim 10 requires the “*cylindrical* mixing chamber” extend “from the admission passages through the two parts to the dispensing orifice.” Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This confirms that the Fusion tips are not a second part of the mixing chamber as claimed.

423. A physical inspection of Fusion further confirms it is a single part, and thus does not disclose this limitation.

424. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses a two-part mixing chamber, Fusion does not anticipate the claim or render the claim obvious.

425. “The state of the art” does not disclose or render obvious “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a

modification would require a complete redesign of the mixing chamber and the associated air purge gun.

426. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components” as required by claim 1. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- b. **[10b] said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end,**

427. Fusion does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion” or a “central passageway with a cylindrical side wall extending to its forward end” of such part.

428. “The state of the art” does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the

art would not have been motivated to modify Fusion mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

429. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- c. **[10c] said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion,**

430. Fusion does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

431. “The state of the art” does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission

passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

432. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

d. **[10d] said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings,**

433. Fusion does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

434. “The state of the art” does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

435. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

e. **[10e] said rearward part being adapted at its forward end to accept the insertion of the forward part,**

436. Fusion does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “rearward part,” it does not have such a part “adapted at its forward end to accept the insertion of the forward part.”

437. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Fusion flat tips that Dr. Rockstraw points to are not inserted into the Fusion

mixing chamber. Indeed, they have the opposite configuration. Fusion mixing chambers thus are not adapted at their forward end to accept insertion of anything.

438. “The state of the art” does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

439. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said rearward part being adapted at its forward end to accept the insertion of the forward part” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

f. **[10f] said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination,**

440. Fusion does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “forward part,” it does

not have a defined “forward internal mixing chamber portion” or a “spraying orifice at its forward termination” of such part.

441. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Fusion flat tips that Dr. Rockstraw points to do not have a “cylindrical sidewall forming a spraying orifice” as required by the claim. Flat spray tips’ spraying orifices have an elliptical shape.

442. “The state of the art” does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

443. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

g. [10g] said forward part being adapted at its rear for insertion and joining with the rearward part,

444. Fusion does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” As explained above with regard to [10a] Fusion does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because Fusion does not have a “forward part,” it does not have such a part “adapted at its rear for insertion and joining with the rearward part.”

445. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the Fusion flat tips that Dr. Rockstraw points to are not inserted into the Fusion mixing chamber. Indeed, they have the opposite configuration. Fusion flat tips thus are not adapted rear for insertion and joining with the rearward part.

446. “The state of the art” does not disclose or render obvious “said forward part being adapted at its rear for insertion and joining with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

447. As explained above and incorporated by reference here, Zittel does not disclose or render obvious a “said forward part being adapted at its rear for insertion and joining with the rearward part” as required by claim 10. Zittel discloses a one part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

h. [10h] the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part,

448. Fusion does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part.” As explained above with regard to [10a]-[10g] Fusion does not disclose or render obvious a “forward part” or a “rearward part” as claimed. I incorporate my analysis of [10a]-[10g] by reference here. Because Fusion does not have a “forward part” or a “rearward part” it does not disclose two “unobstructed central passageway(s)” located for open communication, or inserting and joining.

449. “The state of the art” does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

450. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part” as required by claim 10. Zittel discloses a one-part mixing chamber. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it

would not have been obvious to a person of skill in that art in view of a combination of the two references.

- i. [10i] **the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part,**

451. Fusion does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” As explained above with regard to [10a]-[10h] Fusion does not disclose or render obvious a “forward part” or a “rearward part” as claimed. I incorporate my analysis of [10a]-[10h] by reference here.

452. Fusion further does not disclose a mixing chamber—two part or otherwise—with different diameters. [REDACTED]

[REDACTED] At the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to spraying orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. *E.g.*, GRACO\_0007952 at GRACO\_0007970; GRACO\_0008378 at GRACO\_0008397; GRACO\_0008638 at GRACO\_0008657; GRACO\_0004921 at GRACO\_0004943. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

453. I disagree with Dr. Rockstraw (at ¶ 805) that this limitation is inconsistent with claim 10’s requirement that the mixing chamber be unobstructed. As I explained in my opening expert report, a person of skill in the art would not understand the concentric cylinders required by the claims of the ’172 patent as creating obstructions. An “obstructed” mixing chamber is

one with a static mixer, not one with the type of discontinuity specifically contemplated by the '172 patent's specification and claims.

454. Because Fusion specifically discloses a mixing chamber having a single, consistent size I disagree with Dr. Rockstraw (at ¶ 807) that this limitation is inherent in Fusion .

455. "The state of the art" does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part." Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. Prior art mixing chambers were a single, consistent size throughout. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify Fusion's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

456. As explained above and incorporated by reference here, Zittel does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part" as required by claim 10. Zittel discloses a one-part mixing chamber with a mixing chamber of a single consistent size. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

7. **Claim 11 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.**

457. As discussed above, Fusion does not anticipate or render obvious Claim 10, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 11 is not obvious at least because claim 10 is not obvious.

458. Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.”

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the dispensing orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See* Rockstraw Op. Rpt. ¶ 402.

459. I disagree with Dr. Rockstraw (at ¶ 818) that a person of skill in the art would understand that claim 11 implicitly includes the language “or more.” As Dr. Rockstraw points out, the specification used that language, but it is not in the claims. A person of skill in the art would therefore give the claims their ordinary meaning, which is “approximately.”

460. Because nothing Dr. Rockstraw points to as evidence of Fusion discloses this limitation, Fusion does not anticipate claim 11 or render the claim 11 obvious.

461. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g. ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention.

462. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

8. **Claim 12 - The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.**

463. As discussed above, Fusion does not anticipate or render obvious Claim 10, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 12 is not obvious at least because Claim 10 is not obvious.

9. **Claim 14 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.**

464. As discussed above, Fusion does not anticipate or render obvious Claim 10, nor does Fusion in view of the state of the art or Zittel. I incorporate that discussion by reference here. Claim 14 is not obvious at least because Claim 10 is not obvious.

465. Fusion does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” As explained with regard to claim 10, a

person of skill in the would understand that the Fusion mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See* GRACO\_0007952 at GRACO\_0007970; GRACO\_0008378 at GRACO\_0008397; GRACO\_0008638 at GRACO\_0008657; GRACO\_0004921 at GRACO\_0004943. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

466. As also explained above and incorporated here, pattern augmentation spray tips, including extension tips, are not part of the mixing chamber and thus the Fusion extension tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” I disagree with Dr. Rockstraw (at ¶ 826) that a person of skill in the art would understand “about 1.13” to encompass 1.34. As explained, a person of skill in the art would understand “about” to mean approximately and would further understand that 1.34 is not approximately 1.13.

467. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

468. As explained above and incorporated by reference here, Zittel does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” as required by claim 14. Because neither Fusion nor Zittel discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**G. GAP Does Not Anticipate or Render Obvious the Claims of the '172 Patent**

469. Dr. Rockstraw proposes the following bases of invalidity of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 in view of GAP: anticipation, single reference obviousness, obviousness in view of the state of the art, and obviousness in view of Probler. Rockstraw Op. Rpt. ¶ 7. I address each of Dr. Rockstraw's GAP-based invalidity theories below.

470. The GAP mixing chamber was a one-part mixing chamber, consistent with all air purge mixing chambers known at the time of the invention. *See* Anderson Tr. 17:6-19:2. And example of a GAP mixing chamber is depicted below.



GRACO\_0008718 at GRACO\_0008719.

471. [REDACTED]

[REDACTED] A

person of ordinary skill in the art would understand that such mixing chambers are one part

mixing chambers. I disagree with Dr. Rockstraw's contentions that the way in which GAP mixing chambers were fabricated changes their character from one part to two parts.

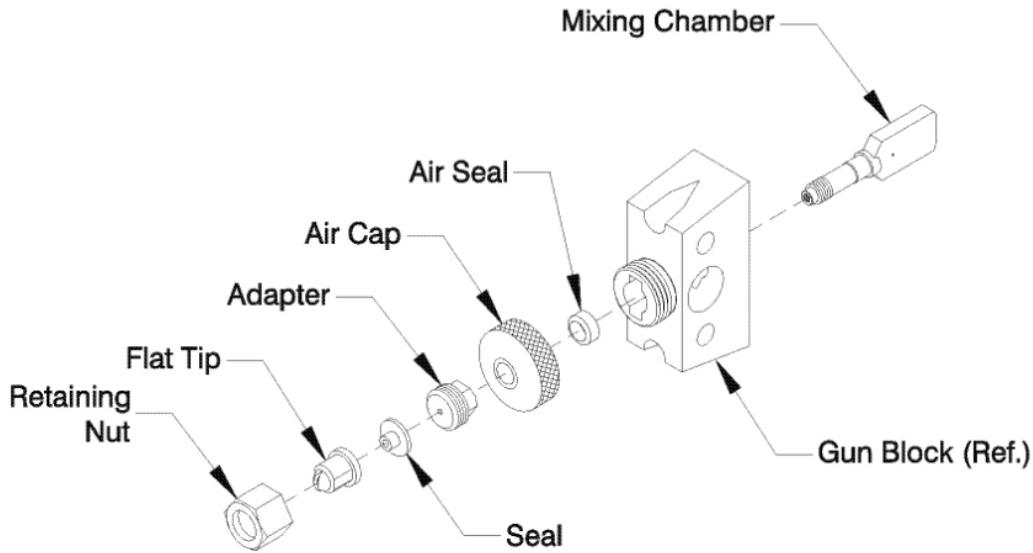
472. As also discussed above, GAP mixing chambers could be fitted with a variety of optional pattern augmentation spray tips. Examples of these tips are depicted below.



*GRACO\_0124714 at 4:09; see also CCM\_00012694 at CCM\_00012703-07 .*

473. Pattern augmentation spray tips are added to the front of the mixing chamber and are not themselves a part of the mixing chamber. A person of skill in the art at the time of the invention understood the difference—they understood what was meant by “mixing chamber” as distinct from “tips.” Mixing of the plural components happened within the mixing chamber and pattern augmentation spray tips formed or changed the spray pattern as the mixed components were dispensed. Manuals for the GAP gun are consistent with the recognized distinction between mixing chambers and tips at the time of the invention:

### Flat Spray Pattern Components



CCM\_00012694 at CCM\_00012704 (flat tip separate part from mixing chamber).

474. I disagree with Dr. Rockstraw's claim that a person of skill in the art would mix-and-match between printed publications and physical prior art products to arrive at the claimed invention. *E.g.*, Rockstraw Op. Rpt. ¶¶ 830, 832, 837, 838, 848, 852, 857, 859, 860, 865, 869, 874, 875, 881, 884, 888, 889 (suggesting that a person of ordinary skill in the art would look to literature correlating to GAP, Probler and Fusion). Dr. Rockstraw identifies no specific reason that would have motivated a person of skill in the art to modify GAP in view of another to achieve each of the claim limitations for which he generically uses the language. A person of ordinary skill would not have been motivated to make such changes, as outlined in Section X.

475. Dr. Rockstraw does not offer an opinion that the claims of the '172 patent are obvious over GAP in view of mechanical purge guns like the GX-7 or GX-8. Rockstraw Op. Rpt. ¶ 7. I nevertheless further disagree with Dr. Rockstraw (at, for example, ¶¶ 839-843, 852, 857, 898, 905, 909, 915, 921, 924-925, 931, 938, 945) to the extent he suggests that a person of skill in the art would modify the GAP, which is an air purge gun, in view of mechanical purge

guns such as the GX-7 or GX-8. *See CCM\_00012620 (Model GX-8 Operating Manual); CCM\_00012598 (Model GX-7 Operating Manual).* As explained, A person of skill in the art would not consider the design of a mechanical purge mixing chamber to be relevant to the design of an air purge mixing chamber as they are fundamentally different in operation. Air purge mixing chambers are purged with air while mechanical purge chambers are purged with a valving rod. This difference results in substantially different characteristics and considerations for designing mixing chambers.

**1. Claim 1**

476. Because GAP does not disclose every element of claim 1 and it would not be obvious to a person of skill in the art to modify GAP to practice every element of the claim 1, GAP does not anticipate or render claim 1 obvious. Claim 1 is also not obvious over GAP in view of Probler or the state of the art, at least because neither the general state of art nor Probler disclose or render obvious the claimed two-part configuration of claim 1.

477. As explained below in Sections X and XI, and incorporated here, a person of skill in the art that the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

478. Further, Dr. Rockstraw's citation to numerous documents does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 1.

- a. [1a] the improvement wherein said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice

479. GAP does not disclose or render obvious a “mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice.” GAP’s mixing chamber is one part and thus does not have a “forward part” and a “rearward part” as claimed.

480. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶ 890) that a person of skill in the art would understand claim 1 as requiring only “an identifiable mixing part and a dispensing part.” A person of skill in the art at the time of the invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

481. A person of skill in the art would understand that GAP’s mixing chambers are one part mixing chambers. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

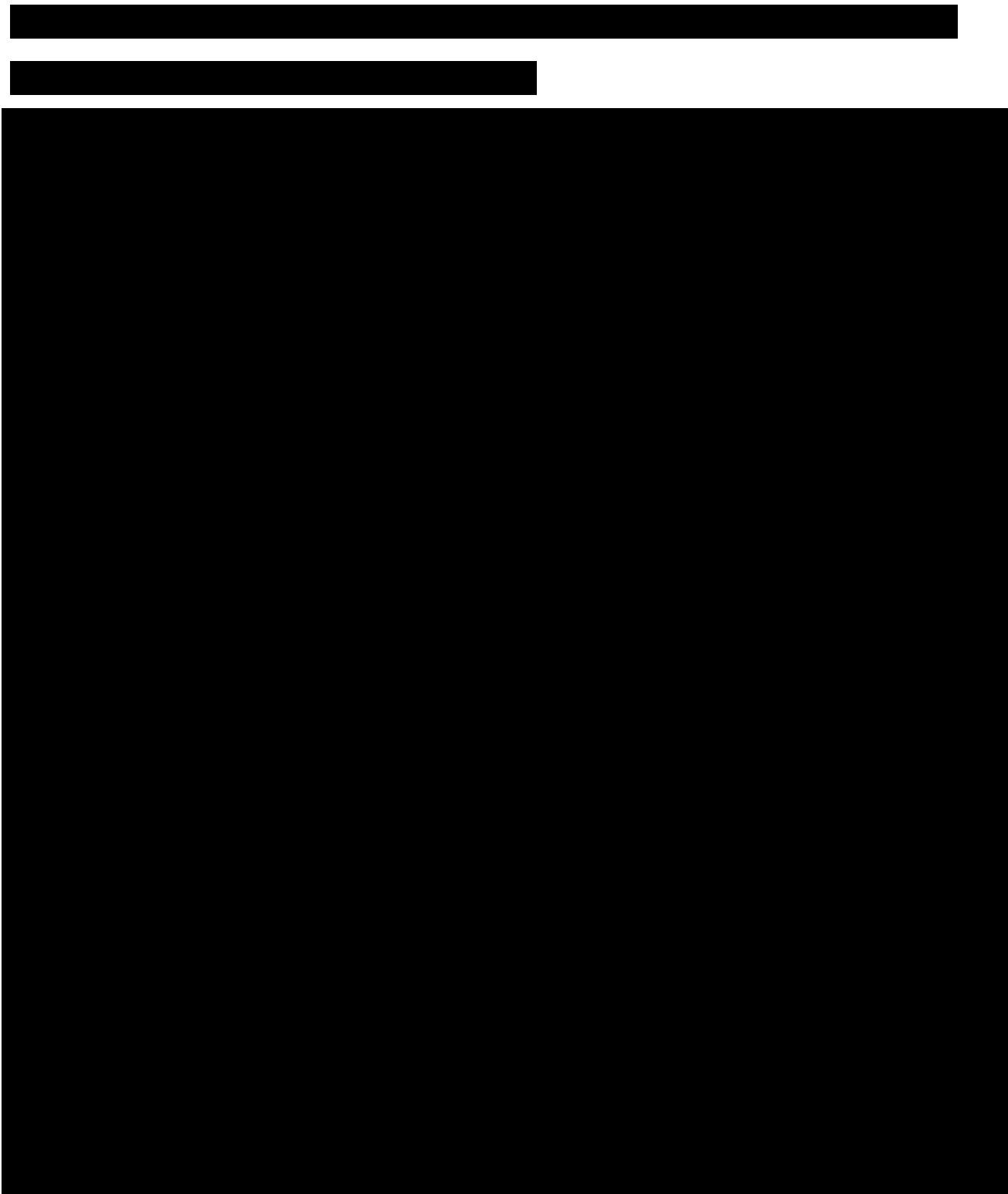
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

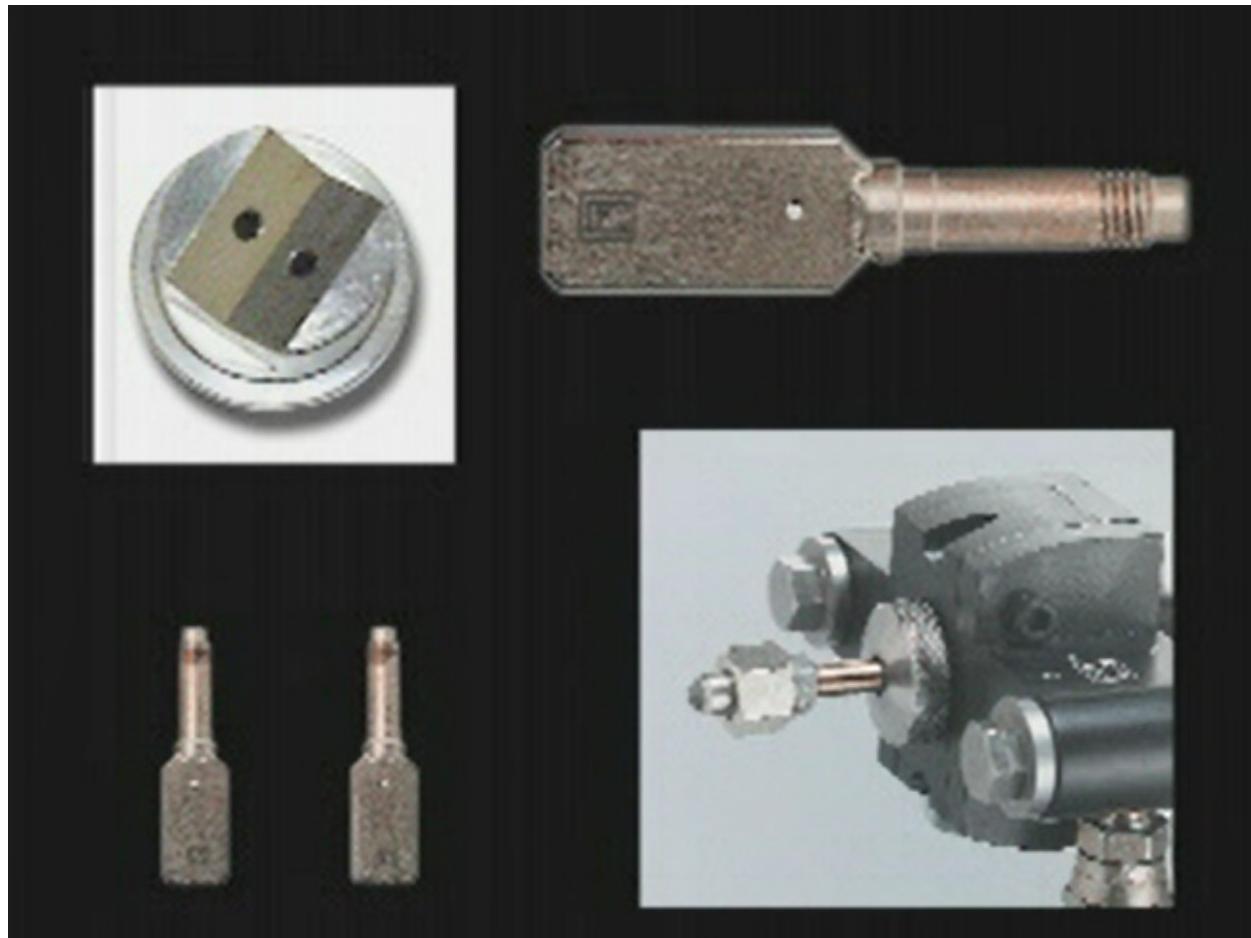
[REDACTED]



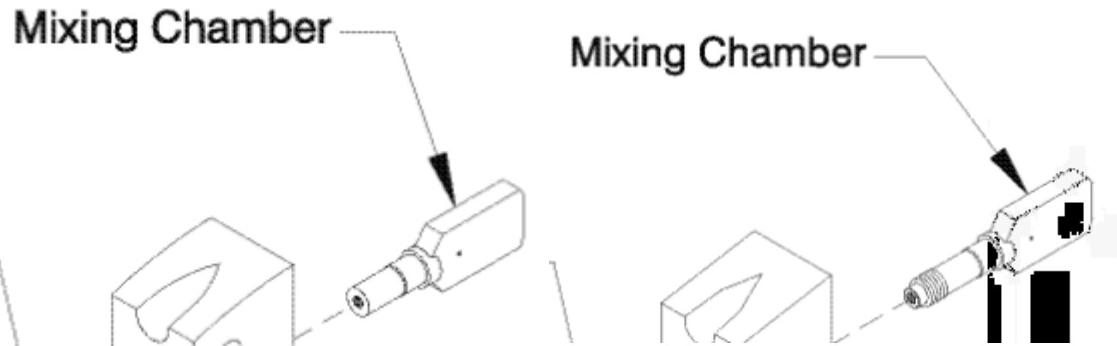
483. GAP marketing materials confirm the GAP mixing chambers are one part. They are described separately, and they each have a single part number.



GRACO\_0008718 at GRACO\_00087189.



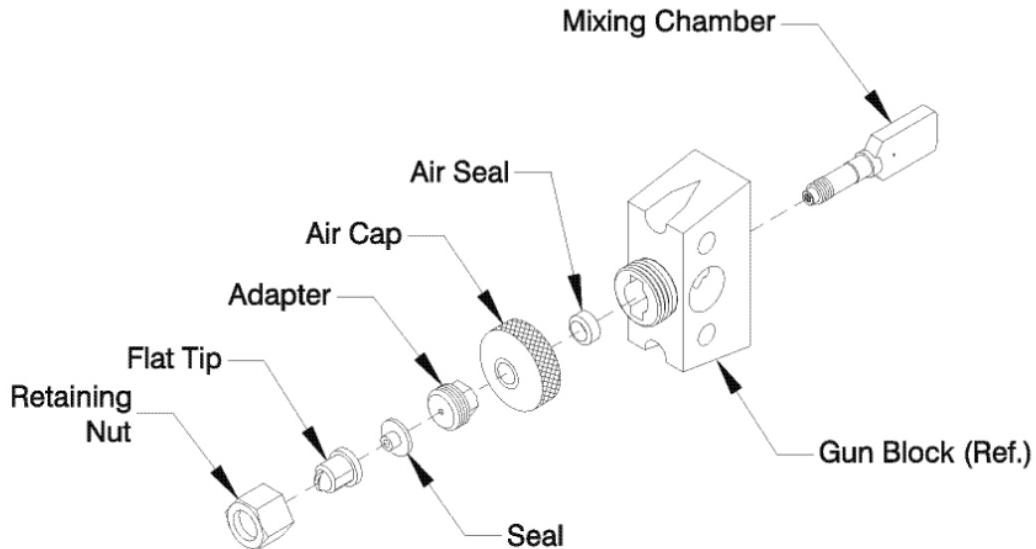
GRACO\_0124714 at 4:09 (discussing mixing chamber and tip options).



CCM\_00012694 at CCM\_00012703-08; *see also* CCM\_00012666 at CCM\_00012673-83.

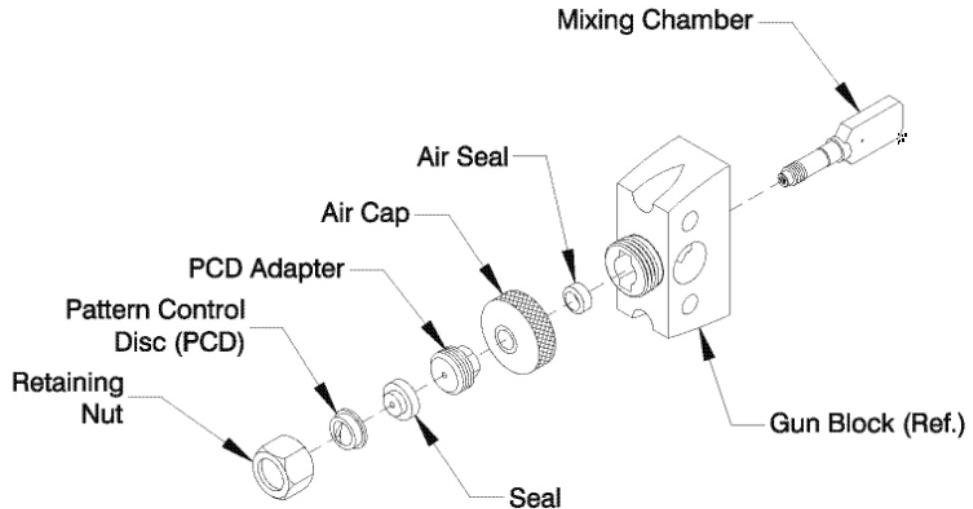
484. A person of skill in the art would understand that GAP flat spray tips and other optional tips are not part of the GAP's mixing chamber. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in GAP materials, the tips are additions added in front of the mixing chamber to augment a spray pattern.

#### Flat Spray Pattern Components



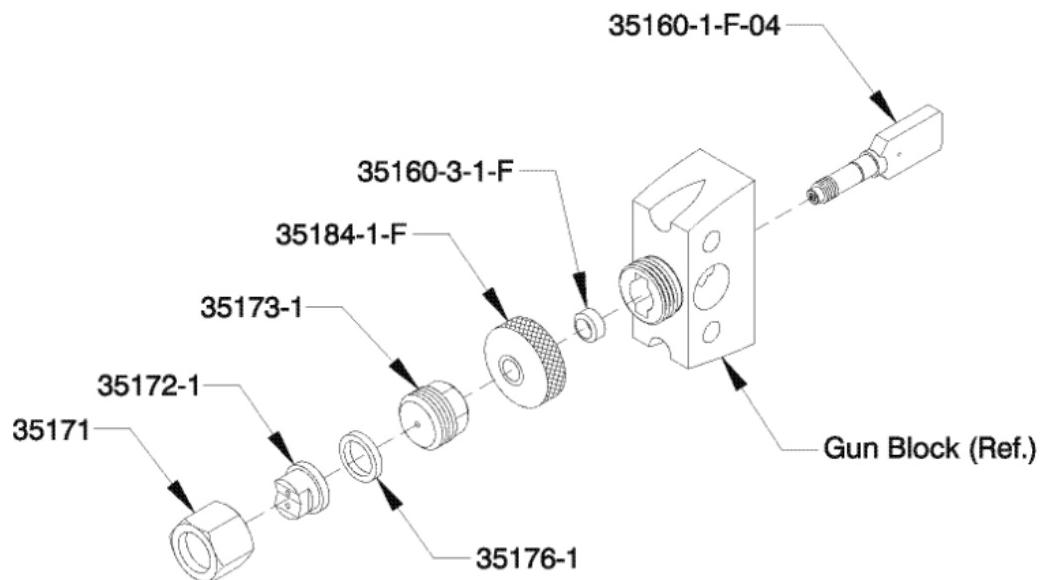
CCM\_00012694 at CCM\_00012704 (flat tip separate part from mixing chamber).

### Pattern Control Disc (PCD) Fan Spray Components



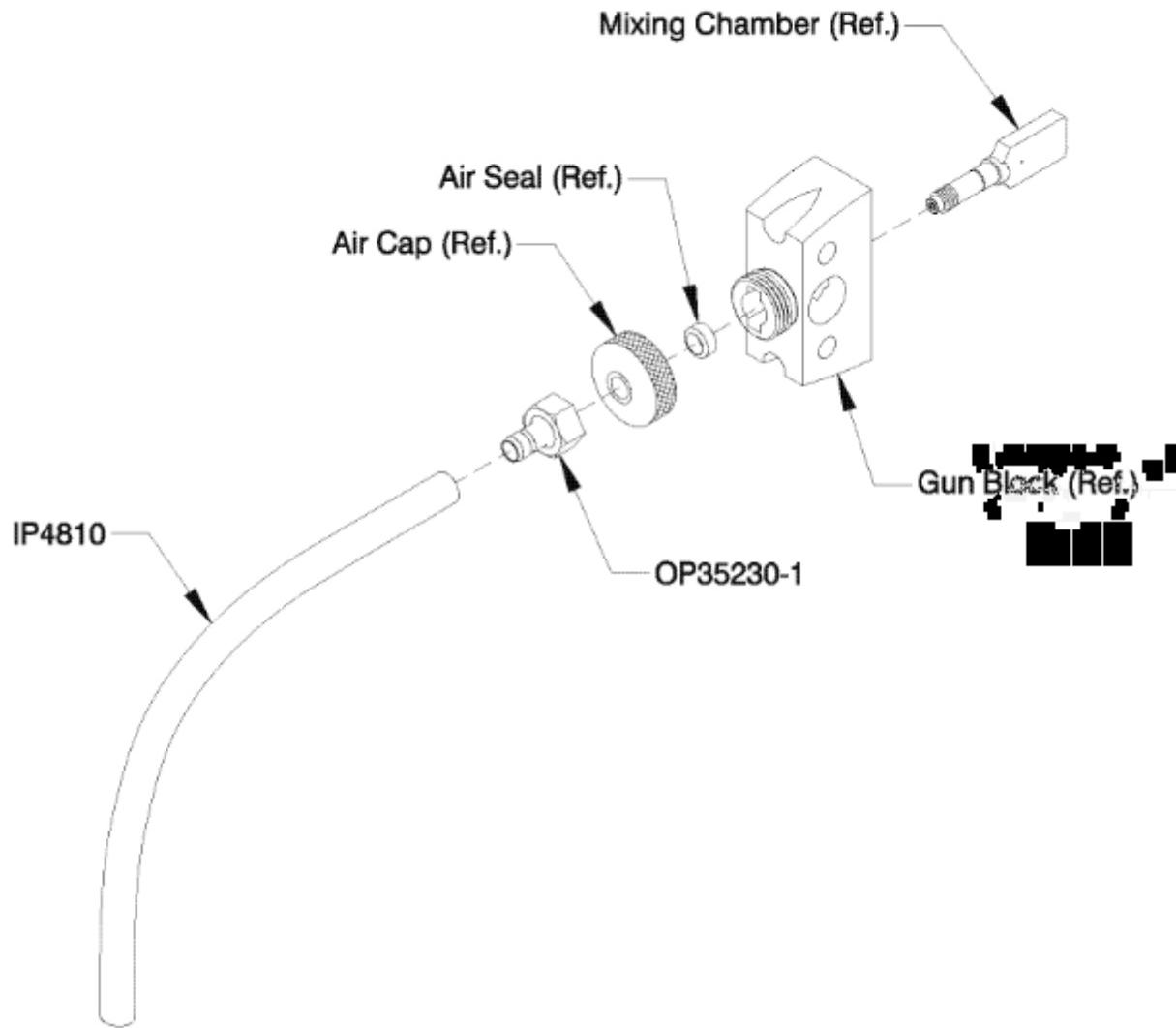
CCM\_00012694 at CCM\_00012705 (mixing chamber separate part from pattern control disc).

### Spatter Spray Components



CCM\_00012694 at CCM\_00012706 (mixing chamber (35160-1-F-04) separate part from spatter flat tip (35172-1)).

## Pour Package Components



CCM\_00012694 at CCM\_00012708 (mixing chamber separate from pour fitting (OP35230-1) and polyflow tubing (IP4810)).

485. Additionally, GAP flat tips, spatter flats tips, and pattern control discs are not cylindrical as required by claim 1. Specifically, claim 1 requires the "*cylindrical* mixing chamber" extend "from the admission passages through the two parts to the dispensing orifice."

Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This further confirms that the GAP tips are not a second part of the mixing chamber as claimed.

486. In my opinion, Dr. Rockstraw's dissection (at ¶¶ 889-915) of the various parts of the claim requirement he labels "1[a]" ("said mixing and dispensing element comprises two parts with said dispensing orifice being formed in a forward part and said cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice") is improper. The claim element must be read together as whole because it describes a single configuration wherein a cylindrical mixing chamber continues through a two-part mixing dispensing element, from the admission passages to the dispensing orifice. A person of skill in the art would understand this mixing chamber configuration as distinctly different from GAP, wherein the mixing chamber continues through a single part.

487. Because nothing Dr. Rockstraw points to as evidence of GAP discloses a two-part mixing chamber, GAP does not anticipate the claim or render the claim obvious.

488. "The state of the art" does not disclose or render obvious "mixing and dispensing element compris[ing] two parts with [the] dispensing orifice being formed in a forward part and [the] cylindrical admission passages being formed in a rearward part with the unobstructed air purge-able cylindrical mixing chamber extending forwardly from the admission passages through the two parts to the dispensing orifice." Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP's mixing

chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

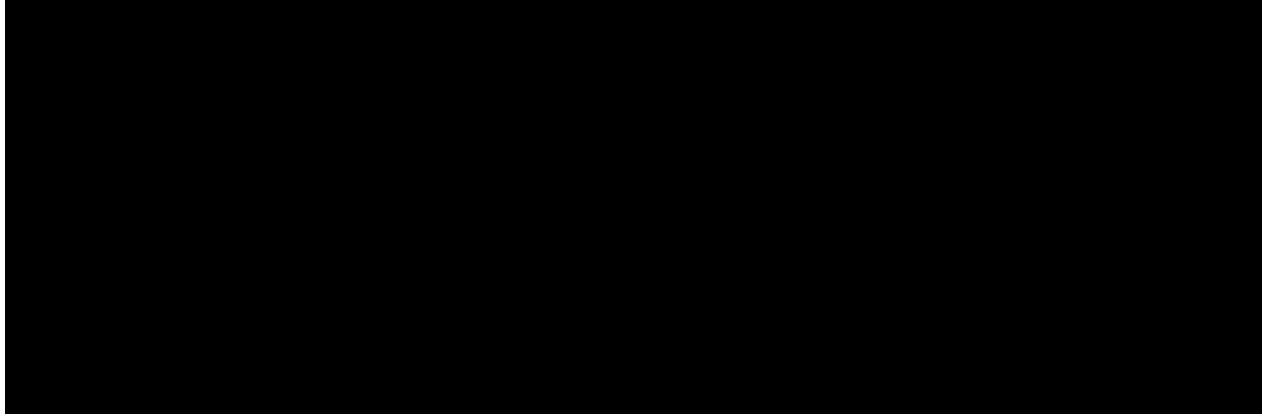
2. **Claim 2 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.**

489. As discussed above, GAP does not anticipate or render obvious Claim 1, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 2 is not obvious at least because claim 1 is not obvious.

490. GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” [REDACTED]

[REDACTED]

[REDACTED]



A ratio of about 1.4 was the common configuration at the time of the '172 patent. Such a ratio was consistent with the typical one-part configuration of a mixing chamber having one, consistent diameter throughout and the understanding that the size of the dispensing orifice be the same as the sum of the admission passages, to allow smooth flow of materials. *See* Rockstraw Op. Rpt. ¶ 402.

491. Because nothing Dr. Rockstraw points to as evidence of GAP discloses this limitation, GAP does not anticipate claim 2 or render the claim 2 obvious.

492. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g., ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention and at the time the GAP was introduced.

493. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections” as required by claim 2. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**3. Claim 3 - The apparatus of claim 1 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.**

494. As discussed above, GAP does not anticipate or render obvious Claim 1, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 3 is not obvious at least because claim 1 is not obvious.

**4. Claim 4 - The apparatus of claim 1 wherein the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.**

495. As discussed above, GAP does not anticipate or render obvious Claim 1, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 4 is not obvious at least because claim 1 is not obvious.

496. GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part.” A person of skill

in the would understand that the GAP mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See* CCM\_00012694 at CCM\_00012710.

[REDACTED]

[REDACTED]

[REDACTED]

497. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus GAP flat tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, GAP flat tips, spatter flats tips, and pattern control discs are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

498. Because nothing Dr. Rockstraw points to as evidence of GAP discloses this limitation, GAP does not anticipate claim 4 or render the claim 4 obvious.

499. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

500. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the mixing chamber is greater in the rearward part than in the forward part” as required by claim 4. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

5. **Claim 5 - The apparatus of claim 4 wherein the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.**

501. As discussed above, GAP does not anticipate or render obvious Claim 1 or claim 4, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 5 is not obvious at least because claims 1 and 5 are not obvious.

502. GAP does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” As explained with regard to claim 4, a person of skill in the would understand that the GAP mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. See CCM\_00012694 at CCM\_00012710. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

503. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus GAP tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, GAP flat tips, spatter flats tips, and pattern control discs are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

504. Because nothing Dr. Rockstraw points to as evidence of GAP discloses this limitation, GAP does not anticipate claim 5 or render the claim 5 obvious.

505. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

506. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice” as required by claim 5. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

## 6. **Claim 10**

507. Because GAP does not disclose every element of claim 10 and it would not be obvious to a person of skill in the art to modify GAP to practice every element of the claim 10, GAP does not anticipate or render claim 10 obvious. Claim 10 is also not obvious over GAP in view of Probler or the state of the art, at least because neither the general state of art nor Probler disclose or render obvious the claimed two-part configuration of claim 10.

508. As explained below in Sections X and XI, and incorporated here, a person of skill in the art at the time of the invention would not have been motivated to modify the prior art to the claimed configuration and would not have reasonably expected such a modification to be successful.

509. Further, Dr. Rockstraw's citation to numerous documents does not establish that any individual piece of prior art, or particular combination of prior art, discloses any element of claim 10.

- a. **[10a] a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components,**

510. GAP does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” GAP’s mixing chamber is one part, and thus does not have a separate “forward part” and “rearward part” as claimed.

511. As discussed above and incorporated here, I disagree with Dr. Rockstraw (at ¶ 959) that a person of skill in the art would understand claim 1 as requiring only “a singular mixing and spraying element, with a two parts assembly.” A person of skill in the art at the time of the invention would have understood the plain meaning of this limitation to require a mixing chamber with two separate parts.

512. A person of skill in the art would understand that GAP’s mixing chambers are one part mixing chambers. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

513. [REDACTED]

[REDACTED]

[REDACTED]

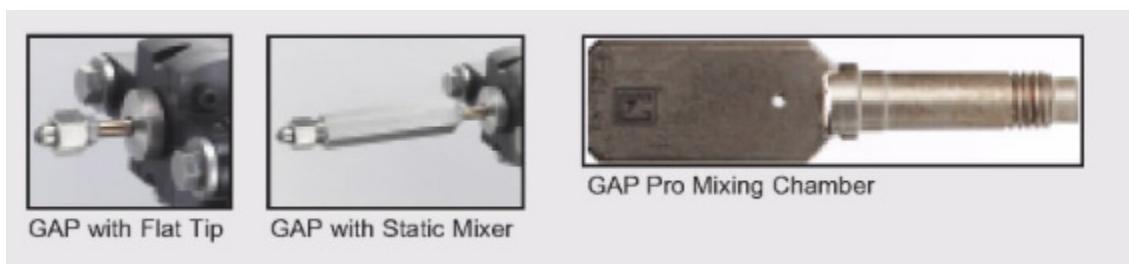
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[REDACTED]

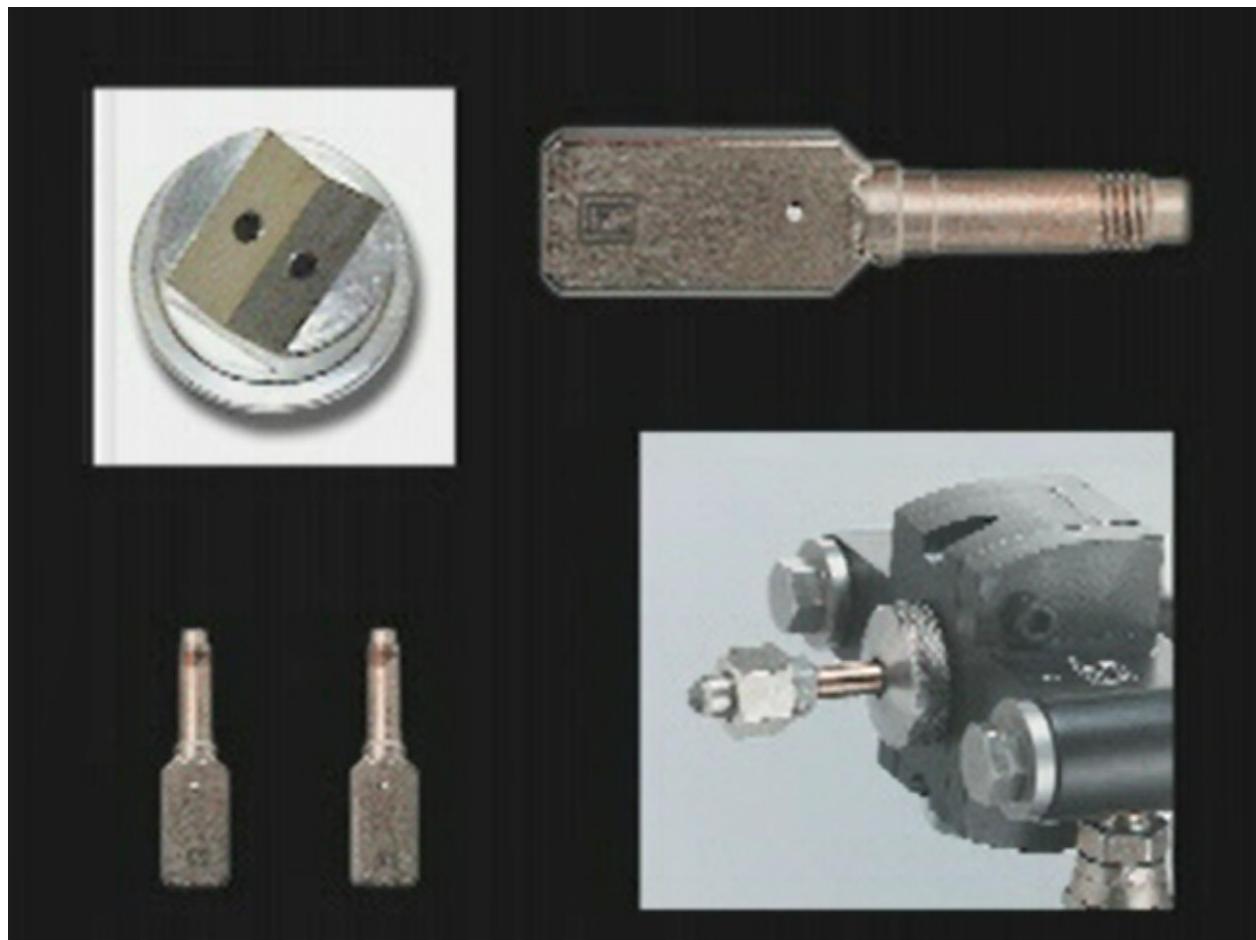
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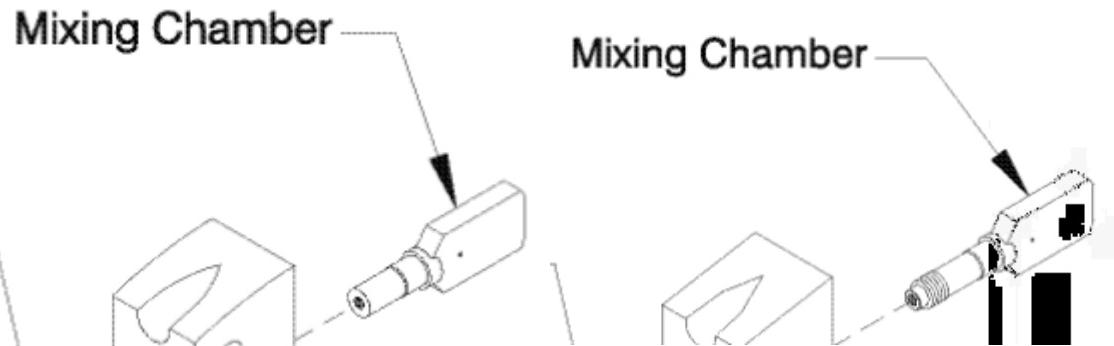
514. GAP marketing materials confirm the GAP mixing chambers are one part. They are described separately, and they each have a single part number.



GRACO\_0008718 at GRACO\_00087189.



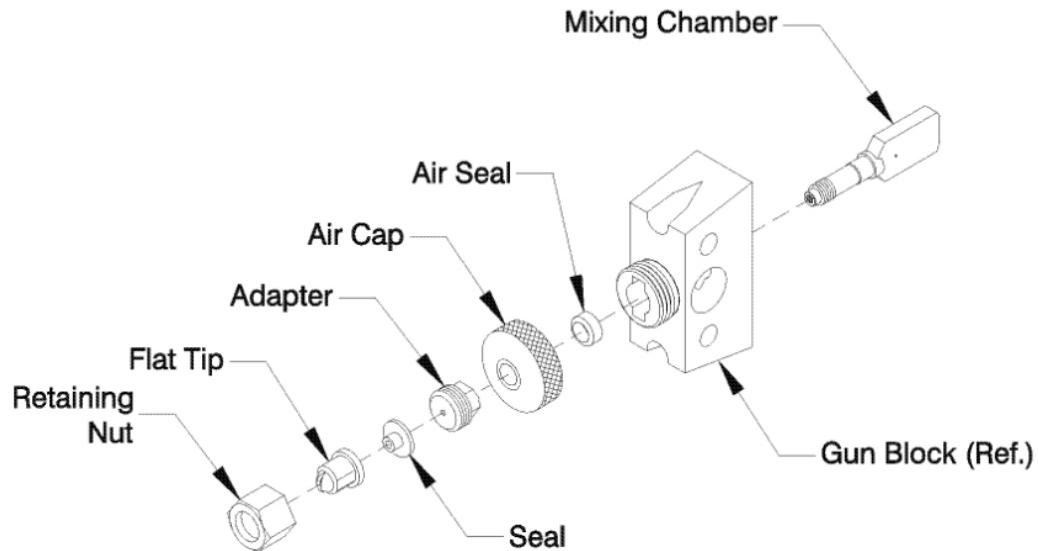
GRACO\_0124714 at 4:09 (discussing mixing chamber and tip options).



CCM\_00012694 at CCM\_00012703-08; *see also* CCM\_00012666 at CCM\_00012673-83.

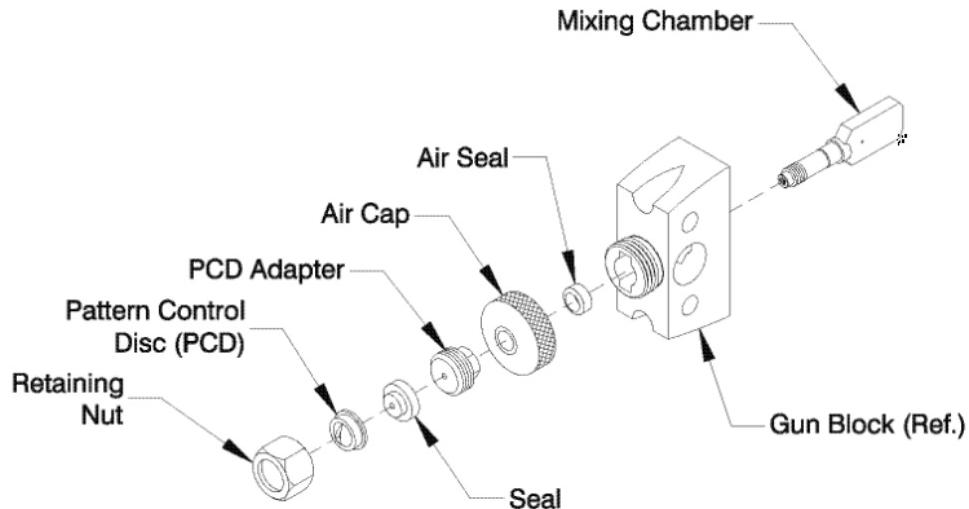
515. A person of skill in the art would understand that GAP flat spray tips and other optional tips are not part of the GAP's mixing chamber. As discussed, a person of skill in the art at the time of the invention understood that pattern augmentation spray tips are not part of the mixing chamber. As consistently shown in GAP materials, the tips are additions added in front of the mixing chamber to augment a spray pattern.

#### Flat Spray Pattern Components



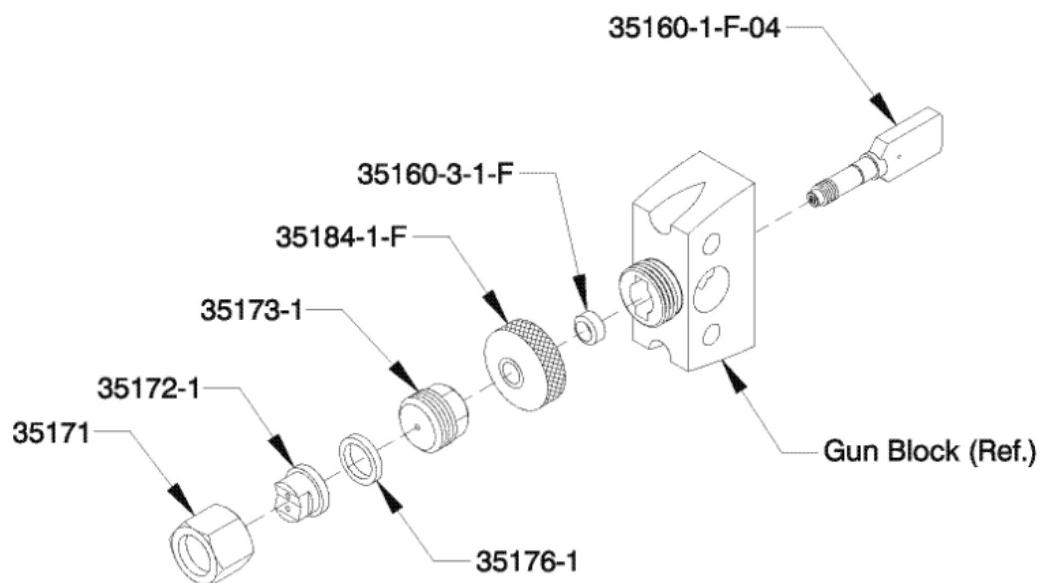
CCM\_00012694 at CCM\_00012704 (flat tip separate part from mixing chamber).

### Pattern Control Disc (PCD) Fan Spray Components



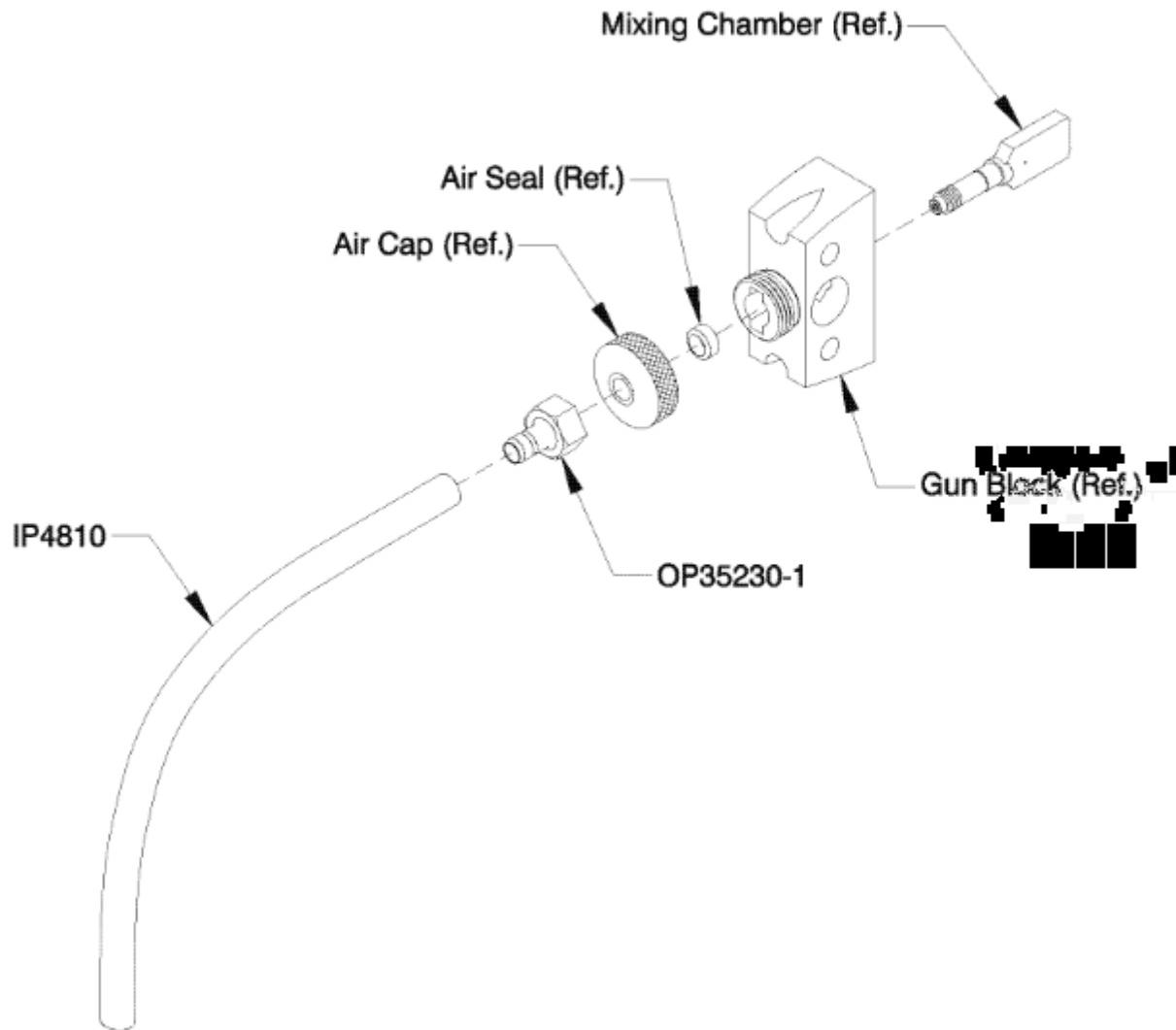
CCM\_00012694 at CCM\_00012705 (mixing chamber separate part from pattern control disc).

### Spatter Spray Components



CCM\_00012694 at CCM\_00012706 (mixing chamber (35160-1-F-04) separate part from spatter flat tip (35172-1)).

### Pour Package Components



CCM\_00012694 at CCM\_00012708 (mixing chamber separate from pour fitting (OP35230-1) and polyflow tubing (IP4810)).

516. Additionally, GAP flat tips, spatter flats tips, and pattern control discs are not cylindrical as required by claim 1. Specifically, claim 1 requires the “*cylindrical* mixing

chamber” extend “from the admission passages through the two parts to the dispensing orifice.”

Thus, the two-part mixing chamber must be cylindrical throughout its two parts. This further confirms that the GAP tips are not a second part of the mixing chamber as claimed.

517. “The state of the art” does not disclose or render obvious “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components.” Mixing and dispensing elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

518. As explained above and incorporated by reference here, Probler does not disclose or render obvious a “a two-part assembly having a forward part and a rearward part and forming an unobstructed cylindrical internal mixing chamber to provide mixing and spraying of the mixed plural components” as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

b. **[10b] said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end,**

519. GAP does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including

an unobstructed central passageway with a cylindrical side wall extending to its forward end.”

As explained above with regard to [10a] GAP does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion” or a “central passageway with a cylindrical side wall extending to its forward end” of such part.

520. “The state of the art” does not disclose or render obvious “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

521. As explained above and incorporated by reference here, Probler does not disclose or render obvious a “said rearward part having planar and opposed outer side portions and forming a rearward internal mixing chamber portion including an unobstructed central passageway with a cylindrical side wall extending to its forward end” as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

c. [10c] said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion,

522. GAP does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” As explained above with regard to [10a] GAP does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

523. “The state of the art” does not disclose or render obvious “said rearward part also having at least two admission passages having cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

524. As explained above and incorporated by reference here, Probler does not disclose or render obvious a “said rearward part also having at least two admission passages having

cylindrical side walls, with each admission passage extending between each of the planar and opposed outer side portions and the unobstructed central passageway and with its cylindrical sidewall being tangent to the cylindrical sidewall of the rearward internal mixing chamber portion” as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

d. **[10d] said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings,**

525. GAP does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” As explained above with regard to [10a] GAP does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a “rearward part,” it does not have a “rearward internal mixing chamber portion.”

526. “The state of the art” does not disclose or render obvious “said cylindrical sidewall of the rearward internal mixing chamber portion having a diameter greater than the diameters of the cylindrical side walls of the admission openings.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

527. As explained above and incorporated by reference here, Probler does not disclose or render obvious a “said cylindrical sidewall of the rearward internal mixing chamber portion

having a diameter greater than the diameters of the cylindrical side walls of the admission openings” as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

e. **[10e] said rearward part being adapted at its forward end to accept the insertion of the forward part,**

528. GAP does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” As explained above with regard to [10a] GAP does not disclose or render obvious a “rearward part” as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a “rearward part,” it does not have such a part “adapted at its forward end to accept the insertion of the forward part.”

529. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the GAP tips that Dr. Rockstraw points to are not inserted into the GAP mixing chamber. Indeed, they have the opposite configuration. GAP mixing chambers thus are not adapted at their forward end to accept insertion of anything.

530. “The state of the art” does not disclose or render obvious “said rearward part being adapted at its forward end to accept the insertion of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

531. As explained above and incorporated by reference here, Probler does not disclose or render obvious a “said rearward part being adapted at its forward end to accept the insertion of the forward part” as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- f. **[10f] said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination,**

532. GAP does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” As explained above with regard to [10a] GAP does not disclose or render obvious a “forward part” as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a “forward part,” it does not have a defined “forward internal mixing chamber portion” or a “a spraying orifice at its forward termination” of such part.

533. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the GAP flat tips, spatter flats tips, and pattern control discs that Dr. Rockstraw points to do not have a “cylindrical sidewall forming a spraying orifice” as required by the claim. Flat spray tips’ spraying orifices, for example, have an elliptical shape.

534. “The state of the art” does not disclose or render obvious “said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of

the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

535. As explained above and incorporated by reference here, Probler does not disclose or render obvious a "said forward part forming a forward internal mixing chamber portion including an unobstructed central passageway with a cylindrical sidewall forming a spraying orifice at its forward termination" as required by claim 10. Probler discloses a one-part mixing chamber. Because neither Probler nor GAP discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

g. **[10g] said forward part being adapted at its rear for insertion and joining with the rearward part,**

536. GAP does not disclose or render obvious "said forward part being adapted at its rear for insertion and joining with the rearward part." As explained above with regard to [10a] GAP does not disclose or render obvious a "forward part" as claimed. I incorporate my analysis of [10a] by reference here. Because GAP does not have a "forward part," it does not have such a part "adapted at its rear for insertion and joining with the rearward part."

537. As explained, spray augmentation tips are not a second part of a mixing chamber. I further note that the GAP tips that Dr. Rockstraw points to are not inserted into the GAP mixing chamber. Indeed, they have the opposite configuration. GAP tips thus are not adapted rear for insertion and joining with the rearward part.

538. "The state of the art" does not disclose or render obvious "said forward part being adapted at its rear for insertion and joining with the rearward part." Mixing and spraying

elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

539. As explained above and incorporated by reference here, Probler does not disclose or render obvious a "said forward part being adapted at its rear for insertion and joining with the rearward part" as required by claim 10. Probler discloses a one-part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

h. **[10h] the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part,**

540. GAP does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part." As explained above with regard to [10a]-[10g] GAP does not disclose or render obvious a "forward part" or a "rearward part" as claimed. I incorporate my analysis of [10a]-[10g] by reference here. Because GAP does not have a "forward part" or a "rearward part" it does not disclose two "unobstructed central passageway(s)" located for open communication, or inserting and joining.

541. "The state of the art" does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part." Mixing and spraying elements known at the time of the invention had a single part

construction and did not comprise two parts with a mixing chamber extending through the two parts. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP's mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

542. As explained above and incorporated by reference here, Probler does not disclose or render obvious "the unobstructed central passageway of the forward part being located for open communication with the unobstructed central passageway of the rearward part when inserted and joined with the rearward part" as required by claim 10. Probler discloses a one part mixing chamber. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

- i. **[10i] the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part,**

543. GAP does not disclose or render obvious "the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part." As explained above with regard to [10a]-[10h] GAP does not disclose or render obvious a "forward part" or a "rearward part" as claimed. I incorporate my analysis of [10a]-[10h] by reference here.

544. [REDACTED]

A person of skill in the art would not have considered this limitation obvious given those considerations.

545. “The state of the art” does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part.” Mixing and spraying elements known at the time of the invention had a single part construction and did not comprise two parts with a mixing chamber extending through the two parts. Prior art mixing chambers were a single, consistent size throughout. None of the art discussed by Dr. Rockstraw is to the contrary. A person of skill in the art would not have been motivated to modify GAP’s mixing chamber to make it two separate pieces as such a modification would require a complete redesign of the mixing chamber and the associated air purge gun.

546. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the cylindrical sidewall of the unobstructed central passageway of the rearward part having a larger diameter than the unobstructed central passageway of the forward part” as required by claim 10. Probler discloses a one-part mixing chamber with a mixing chamber of a single consistent size. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

7. **Claim 11 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.**

547. As discussed above, GAP does not anticipate or render obvious Claim 10, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 11 is not obvious at least because claim 10 is not obvious.

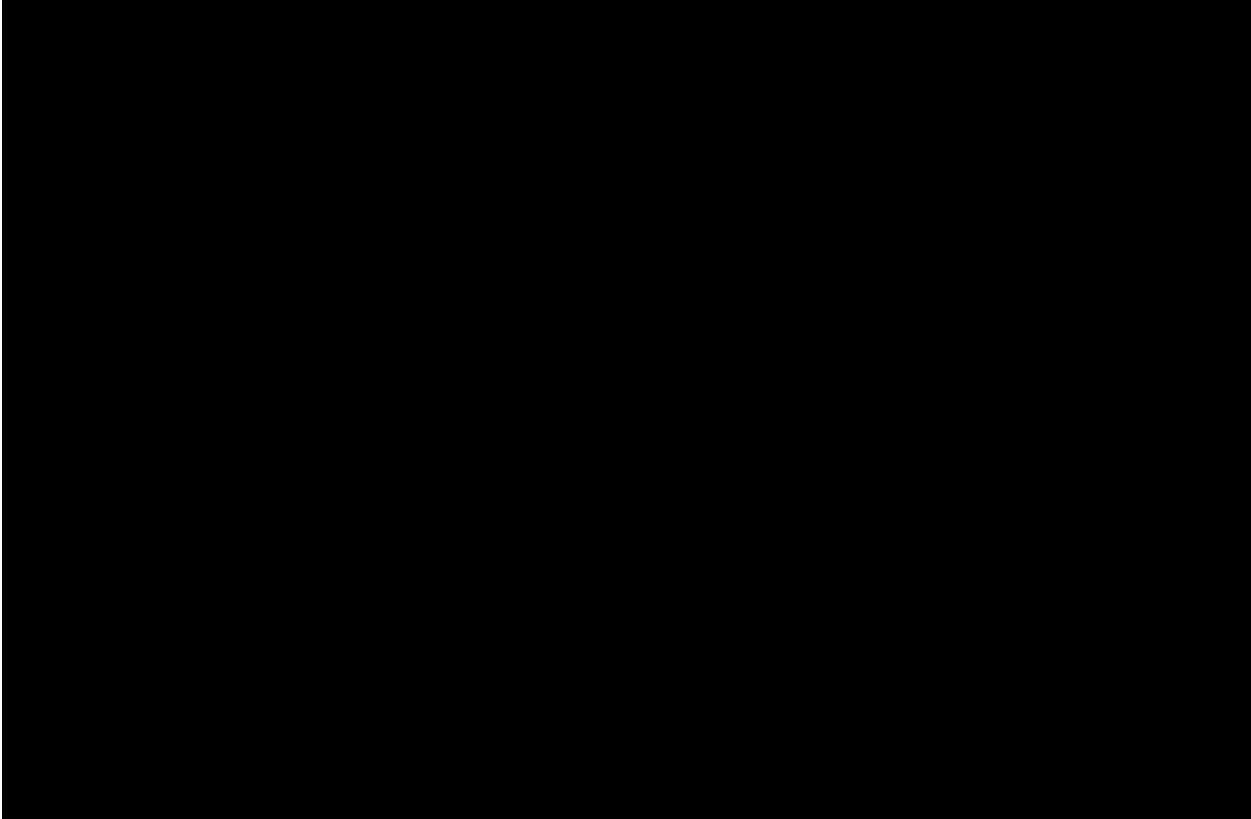
548. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



549. Because nothing Dr. Rockstraw points to as evidence of GAP discloses this limitation, GAP does not anticipate claim 11 or render the claim 11 obvious.

550. “The state of the art” does not render this limitation obvious. As discussed, the state of the art was a ratio of about 1.4. As Dr. Rockstraw consistently points out (e.g., ¶ 210), the Probst patent and Probler gun had been used for decades at the time of the invention.

551. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections” as required by claim 11. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

8. **Claim 12 - The mixing and spraying element of claim 10 wherein the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.**

552. As discussed above, GAP does not anticipate or render obvious Claim 10, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 12 is not obvious at least because claim 10 is not obvious.

9. **Claim 14 - The mixing and spraying element of claim 10 wherein the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.**

553. As discussed above, GAP does not anticipate or render obvious claim 10, nor does GAP in view of the state of the art or Probler. I incorporate that discussion by reference here. Claim 14 is not obvious at least because claim 10 is not obvious.

554. GAP does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” As explained with regard to claim 10, a person of skill in the would understand that the GAP mixing chamber has a single, consistent size throughout at least because the mixing chamber could be cleaned with a drill bit of a single size. *See CCM\_00012694 at CCM\_00012710.* [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

555. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus GAP tips are not a “forward part” of the mixing chamber having a lesser diameter than a “rearward part.” Additionally, as also explained above, GAP flat tips, spatter flats tips, and pattern control discs are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim.

556. “The state of the art” does not render this limitation obvious. At the time of the invention, mixing chambers were designed as a single part and had a single, consistent mixing chamber diameter. As discussed throughout my report, no prior art mixing chamber comprised two parts and thus such a configuration was not obvious in view of the state of the art. Specifically, at the time of the invention, all known air purge gun mixing chambers had a mixing chamber of a single, consistent size from rear to dispensing orifice. This single, consistent size allowed the use of drills to clear clogs from the chamber. It would not have been obvious to design a mixing chamber with a larger rearward part than forward part because such a mixing

chamber could not be cleared with a drill in the event of a clog. A person of skill in the art would not have considered this limitation obvious given those considerations.

557. As explained above and incorporated by reference here, Probler does not disclose or render obvious “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part” as required by claim 14. Because neither GAP nor Probler discloses this limitation or render it obvious, it would not have been obvious to a person of skill in that art in view of a combination of the two references.

**X. AN ORDINARILY SKILLED ARTISAN WOULD NOT HAVE BEEN MOTIVATED TO COMBINE REFERENCES IN THE CLAIMED CONFIGURATION**

558. Dr. Rockstraw’s summary (at ¶ 1047) misses important nuance in the timeline of the development of spray foam gun products. First generation spray foam guns, such as the one described in the 1960s patent to Hagfors (CCM\_00004310), were not air purge guns like the ST1 and the gun described in the ’172 patent. They were either purged by solvents or mechanically purged with a valving rod. As I discuss above, a person of skill in the art would not consider the design of a mechanical purge mixing chamber to be relevant to the design of an air purge mixing chamber as they are fundamentally different in operation. Air purge mixing chambers are purged with air while mechanical purge chambers are purged with a valving rod. This difference results in substantially different characteristics and considerations for designing mixing chambers.

559. The Probler air purge gun—the first of its kind—was introduced by Ransburg corporation (later acquired by Glas-Craft) in the mid-1970s. Patents listing Richard Probst as the inventor confirm the first development of air purge guns was in the 1970s, including the Probst patent (CCM\_00004338) and a patent to Moss and Probst (CCM\_00004371). Because the

Probler was the first of its kind in the industry, the patents covering it effectively prevented other companies from entering the market for the entire 20-year life of the patents. Probler was the only air purge gun on the market from the mid-1970s to the mid-1990s. As discussed above, the Probler had a one-part mixing chamber. If a contractor wished to augment the Probler spray pattern, he could affix one of Probler's optional spray pattern augmentation tips in front of the mixing chamber.

560. In the mid-1990s to the early 2000s, companies other than Glas-Craft introduced air purge guns to compete with the Probler. Gusmer developed and launched the GAP in the mid-1990s. The GAP was a close copy of the Probler with some changes to materials used. *See* GRACO\_0124714. The mixing chambers, as shown below, were virtually identical:



GRACO\_0008718 at GRACO\_00087189; *see also* CCM\_00013457 at 2:18, 7:50.

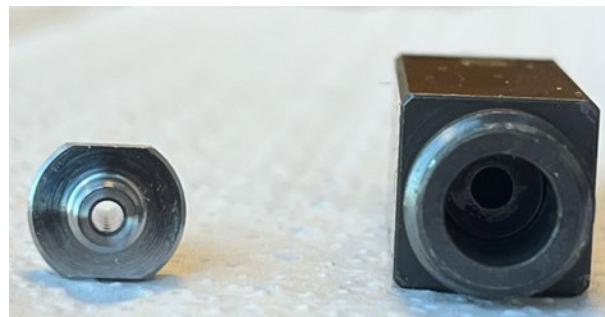
The GAP had the same one-part construction as the Probler, as I discuss in detail above, and used the same solution as Probler to allow contractors to augment spray pattern with optional tips.

561. In the early 2000s, Graco developed and launched the Fusion, which has a number of improved features different from the Probler. Of relevance here, the Fusion introduced a differently shaped mixing chamber:



But, like the GAP, the Fusion maintained the one-part mixing chamber construction of the Probler air purge gun. And, like the Probler and the GAP, the Fusion utilized the Probler's existing strategy for spray pattern augmentation, which was to allow contractors to affix tips in front of the mixing chamber.

562. Shortly after Gusmer's GAP and Graco's Fusion, Glas-Craft developed and launched the P2. The P2 was the first air purge mixing chamber to deviate from the Probler's one part mixing chamber construction. *See generally* GRACO\_0008035. As described in the '172 patent, the P2's internal mixing chamber has two parts, a rearward part with admission passages and a forward part forming a cylindrical spraying/dispending orifice:



The P2's design was a fundamental change in the overall shape and construction of an air purge mixing chamber, unlike anything on the market previously.

563. As explained throughout my report, and reiterated here, none of the air purge guns on the market at the time of the invention (Probler, GAP, Fusion) had a two-part mixing chamber and none had a mixing chamber with a larger rearward internal mixing chamber portion than forward internal mixing chamber portion. Instead, they each had one part mixing chambers of a single, consistent size throughout. Available literature at the time of the invention also did not disclose or suggests a two-part mixing chamber such as the one described in the '172 patent. A person of skill in the art would not have been motivated to incorporate a two-part mixing chamber based on the prior art guns and literature, at least because none of those had such a mixing chamber.

564. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] They show the opposite. Graco engineers—faced with the same landscape that we are now considering through hindsight—evaluated the art and developed a one-part mixing chamber. That is, considering the same information we are considering today, they did not develop a two-part mixing chamber. They developed the one-part Fusion mixing chamber. This is strong evidence that the '172 patent's unique construction was not obvious at the time of the invention and strong evidence that it is only through hindsight that Dr. Rockstraw concludes it is.

565. As discussed above with respect to each of Probler, Fusion, and GAP, pattern augmentation tips are added to the front of the mixing chamber and are not themselves a part of the mixing chamber. A person of skill in the art at the time of the invention understood the difference—they understood what was meant by “mixing chamber” as distinct from “tips.” Mixing of the plural components happened within the mixing chamber and pattern augmentation spray tips formed or changed the spray pattern as the mixed components were dispensed. Because tips are different from the mixing chamber, a person of skill in the art would not have understood them to be a second part of the mixing chamber.

566. A person of skill in the art also would not have been motivated to develop a two-part mixing chamber based on the mere existence of optional spray augmentation tips. Such optional attachments to the front of a mixing chamber do not suggest to a person of skill in the art that the mixing chamber itself should be formed from two parts of different relative diameters. Dr. Rockstraw identifies nothing in the prior art that would have motivated a person of skill in the art to augment the mixing chamber itself. Indeed, as his focus on tips confirms, a person of skill in the art would not have been motivated to arrive at the claimed configuration because mix tips were an available option.

567. In my opinion, Dr. Rockstraw’s conclusion that the ’172 patent claims are obvious is only explainable by hindsight. None of the prior art products or references he relies on disclose a configuration like the one claimed in the ’172 patent, wherein the mixing chamber itself is made up of two parts, a rearward part and a forward part. And none disclose a mixing chamber with a rearward part with a larger diameter than the forward part. He provides no explanation or motivation for a person of skill in the art to augment the prior art products or references to the claimed configuration. Additionally, the claimed configuration would not have

been obvious to a person of skill in the art at least because such a person would have been hesitant to deviate from the standard configuration found in Probler. At the time of the invention, users of air purge spray guns expected the particular mixing and dispensing quality produced by the Probler, with its particular set of dimensions for admission passages and mixing chambers. The invention claimed in the '172 patent diverges from that standard configuration and introduces a size discontinuity within the mixing chamber itself. Given the known mixing chamber—which was known to work—it was not obvious to make the changes reflected in the '172 patent.

## XI. OBJECTIVE INDICIA SUPPORT NONOBVIOUSNESS

568. Objective evidence supports the nonobviousness of the claims of the '172 patent. Specifically, copying, and unexpected results.

569. *Copying.* I understand that Carlisle's engineer responsible for designing the ST1 was aware of single part mixing chambers as a design option but nevertheless copied the '172 patent's two-part mixing chamber design when developing the ST1 gun. Byrne Tr. 28:1-32:20, 39:10-40:22, 54:4-56:17, 62:20-66:5; 92:11-16; 94:5-95:5; CCM\_00041400. I further understand that Carlisle's copying was driven by its marketing department's assessment that there was consumer demand for that feature. Byrne Tr. at 86:2-87:1. In my opinion, the fact that Carlisle copied the '172 patent in developing the ST1 gun is objective evidence that the claimed two-part configuration was not obvious. Rather than independently developing the design Carlisle looked to Graco's specific innovation and included the feature in its product, as I set out in my opening expert report on patent infringement which is incorporated here in relevant part.

570. *Unexpected Results.* That the two-part mixing chamber design described in the '172 patent was effective at mixing and dispensing quality foam was surprising at the time of the invention. As explained in detail elsewhere in my report, unobstructed air purge-able mixing

chambers available prior to the filing of the '172 patent had a one-part mixing chamber of a single, consistent size. That was the background against which John McMichael undertook designing a mixing chamber for the P2 gun. I understand that after some trial and error with a one part mixing chamber (McMichael Tr. at 147:6-149:13), Mr. McMichael proposed to his boss, Steve Sinders, that they try making a two part mixing chamber, with a larger rearward mixing chamber portion and a smaller forward mixing chamber portion (McMichael Tr. 149:14-154:12; Sinders Tr. 200:19-201:10). Mr. Sinders, who had worked in the industry for many years, was skeptical whether such a design would work. Sinders Tr. 243:1-11. Surprisingly, the design worked. The two-part design allowed for a beneficial discontinuity within the mixing chamber to promote better mixing within the mixing chamber. '172 patent, 6:2-21. It also allowed flexibility in spray pattern, a particular benefit over prior art solutions that involved adding a tip in front of a single part mixing chamber. McMichael Tr. 145:20-146:22. It also was easier to manufacture. Sinders Tr. 243:12-244:19. And it saved time and resources when drill bits break off in the mixing chamber during clog clearing. Sinders Tr. 243:2-11.

## **XII. THE '172 PATENT MEETS THE REQUIREMENTS OF 35 U.S.C. §112**

### **A. The claims meet the definiteness requirement of 35 U.S.C. § 112.**

571. Dr. Rockstraw opines that these terms found in the '172 patent claim are indefinite: "substantially equal," "about 1.6 times," "about 1.13 times," and "at least about 0.011 to about 0.013 inches." Rockstraw Op. Rpt. ¶¶ 1138-1153. I disagree. A person of skill in the art would be reasonably certain as to the meaning of both of these terms, in particular given the well-known and accepted tolerances for machining parts.

#### **1. "substantially equal" (claims 1 and 10)**

572. Independent claims 1 and 10 require that the "the sum of the cross-sectional areas of the cylindrical admission passages being substantially equal to the cross-sectional area of the

[dispensing/spraying] orifice.” A person of skill in the art would be reasonably certain as to the scope of this limitation and, thus, it satisfies the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

573. As Dr. Rockstraw explains throughout his report, skilled artisans at the time of the invention knew that the volume of fluid entering a mixing chamber should be approximately equal to the volume of fluid exiting the chamber, thus the size for the admission passages should be substantially equal to the claimed dispensing/spray orifice.

574. A person of skill in the art thus would understand that the claims require admissions passages having a sum of cross-sectional areas that is close to, but not necessarily exactly, equal to the dispensing/spraying orifice cross-sectional area. Dr. Rockstraw appears to agree with this understanding. *See Rockstraw Op. Rpt. at ¶ 404 (“a POSITA would know that ‘substantially equal’ does not require that the areas be exact”); see also id. at ¶ 592 (chamber and sum of admission passages substantially equal “because they have cross sectional areas within ten thousandths square inches of one another”).*

575. The ’172 further provides guidance of a person of skill in the art to understand the meaning of “substantially equal.” As Dr. Rockstraw agrees (at ¶ 1139), the specification describes a diameters of preferred admission passages that result in a sum of their cross-sectional diameters that is not exactly equal to the cross-sectional are of the dispensing orifice. The preferred admission passages have a diameter of 0.043 in. ’172 patent, 5:51. The sum of the cross-sectional areas of such admission passages is 0.0029 in<sup>2</sup>. The preferred mixing chamber diameter is 0.060 in. ’172 patent, 5:54. Thus the preferred mixing chamber as a cross-sectional area of 0.0028 in<sup>2</sup>. The same dimensions, resulting in the same calculations, appear in ’172 patent claim 15. These figures are within one-thousandths of a square inch of each other. A

person of skill in the art would understand that two figures within one-thousandth of a square inch of each other are substantially equal.

576. I disagree with Dr. Rockstraw that the prosecution history would render a person of skill in the art uncertain as to the meaning of “substantially equal.” The examiner expressed no confusion about the term and, indeed, was able to understand the scope of the claims with it.

2. **“about”**

577. A person of skill in the art would understand the plain and ordinary meaning of “about” as used in the claims of the ’172 patent is approximately. A person of skill in the art would be reasonably certain as to the scope of limitation including “about” and, thus, they satisfy the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

a. **“about 1.6 times” (claims 2 and 11)**

578. Dependent claims 2 requires “the diameter of the cylindrical sidewall of the mixing chamber is about 1.6 times the diameters of the admission passages at their intersections.” Claim 11 similarly requires “the diameter of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber is about 1.6 times the diameter of the cylindrical side walls of the admission passages at their intersections.” A person of skill in the art would be reasonably certain as to the scope of these limitations and, thus, they satisfy the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

579. The ’172 provides guidance of a person of skill in the art to understand the meaning of “about 1.6 times.” As Dr. Rockstraw agrees (at ¶ 1143), the specification describes diameters for preferred admission passages (0.043 in.) and a preferred diameter for a mixing chamber (0.069 in.). ’172 patent, 5:49-55. 0.069 inches is about 1.6 times 0.043 inches—1.61. A person of skill in the art would understand that ratio is about – or approximately –1.6. The same dimensions, resulting in the same calculations, appear in ’172 patent claim 15.

580. I disagree with Dr. Rockstraw that the prosecution history would render a person of skill in the art uncertain as to the meaning of “substantially equal.” The examiner expressed no confusion about the term and, indeed, was able to understand the scope of the claims with it.

b. **“about 1.13 times” (claims 5 and 14)**

581. Dependent claims 5 requires “the diameter of the cylindrical sidewall in the rearward part is about 1.13 times the diameter of the dispensing orifice.” Claim 14 similarly requires “the diameter of the cylindrical sidewall of the unobstructed central passageway in the rearward part is about 1.13 times the diameter of the spraying orifice in the forward part.” A person of skill in the art would be reasonably certain as to the scope of these limitations and, thus, they satisfy the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

582. The ’172 provides guidance of a person of skill in the art to understand the meaning of “about 1.13 times.” As Dr. Rockstraw agrees (at ¶ 1147), the specification describes preferred diameters with a rearward part (0.069 in.) and a forward part (0.060 in.) of the preferred mixing chamber. ’172 patent, 5:49-55. 0.069 inches is about 1.13 times 0.060 inches—specifically it is 1.15 times. A person of skill in the art would understand that ratio is about – or approximately—1.13. The same dimensions, resulting in the same calculations, appear in ’172 patent claim 15.

583. I disagree with Dr. Rockstraw that the prosecution history would render a person of skill in the art uncertain as to the meaning of “substantially equal.” The examiner expressed no confusion about the term and, indeed, was able to understand the scope of the claims with it.

c. **“at least about 0.011 to about 0.013 inches” (claims 3 and 12)**

584. Dependent claims 3 requires “the central axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the mixing chamber by at least about 0.011 to about 0.013 inches.” Claim 12 similarly requires “the central

axes of the cylindrical sidewalls of the admission passages are each offset from the central axis of the cylindrical sidewall of the rearward internal mixing chamber portion of the mixing chamber by at least about 0.011 to about 0.013 inches.” A person of skill in the art would be reasonably certain as to the scope of these limitations and, thus, they satisfy the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

585. The ’172 provides guidance of a person of skill in the art to understand the meaning of “at least about 0.011 to about 0.013 inches.” *See* ’172 patent, 5:35-55. Specifically, the patent explains that the offset allows effective swirling and mixing, in conjunction with the tangent configuration of the admission passages. A person of skill in the art would be reasonably certain of the scope of the claims in view of the patent’s discussion of the purpose of the offset and their understanding of other variables involved in achieving effective mixing.

586. Further, as explained with regard to the other “about” terms, a person of skill in the art would understand the claims cover those approximately equal to the stated numbers. As Dr. Rockstraw agrees, a person of skill in the art would understand that this term does not require exactly the stated dimensions and would understand that deviations of one thousandth of an inch are within the claimed scope. Rockstraw Op. Rpt. ¶ 510.

587. I disagree with Dr. Rockstraw that the prosecution history would render a person of skill in the art uncertain as to the meaning of “substantially equal.” The examiner expressed no confusion about the term and, indeed, was able to understand the scope of the claims with it.

**B. The claims meet the written description requirement of 35 U.S.C. § 112.**

588. Dr. Rockstraw opines that the ’172 patent does not have adequate written description support for these limitations: “substantially equal,” “about 1.6 times,” “about 1.13 times,” and “at least about 0.011 to about 0.013 inches.” Rockstraw Op. Rpt. ¶¶ 1154-1169. I disagree.

589. In my opinion, a person of skill in the art reading the specification as a whole would understand the inventors to have had possession of the claimed subject matter at the time of the '172 patent filing. *See* '172 patent, 5:13-55, Figs. 3-12.

1. **"substantially equal" (claims 1 and 10)**

590. Dr. Rockstraw's discussion of the written description support for this term is virtually identical to his discussion of the definiteness of this term. I incorporate my response regarding the definiteness of the term in Section XII.A.1 here by reference.

591. A person of ordinary skill in the art would understand that the applicant had possession of "substantially equal" at the time of filing based on the specification's detailed description of the invention, including the claimed "substantially equal" dimensions which are expressly stated and described in the specification.

2. **"about"**

a. **"about 1.6 times" (claims 2 and 11)**

592. Dr. Rockstraw's discussion of the written description support for this term is virtually identical to his discussion of the definiteness of this term. I incorporate my response regarding the definiteness of the term in Section XII.A.2.a here by reference.

593. A person of ordinary skill in the art would understand that the applicant had possession of "about 1.6 times" at the time of filing based on the specification's detailed description of the invention, including the claimed "about 1.6 times" dimensions which are expressly stated and described in the specification.

b. **"about 1.13 times" (claims 5 and 14)**

594. Dr. Rockstraw's discussion of the written description support for this term is virtually identical to his discussion of the definiteness of this term. I incorporate my response regarding the definiteness of the term here in XII.A.2.b by reference.

595. A person of ordinary skill in the art would understand that the applicant had possession of “about 1.13 times” at the time of filing based on the specification’s detailed description of the invention, including the claimed “about 1.13 times” dimensions which are expressly stated and described in the specification.

c. **“at least about 0.011 to about 0.013 inches” (claims 3 and**

596. Dr. Rockstraw’s discussion of the written description support for this term is virtually identical to his discussion of the definiteness of this term. I incorporate my response regarding the definiteness of the term in Section XII.A.2.c. here by reference.

597. A person of ordinary skill in the art would understand that the applicant had possession of “at least about 0.011 to about 0.013 inches” at the time of filing based on the specification’s detailed description of the invention, including the claimed “at least about 0.011 to about 0.013 inches” dimensions which are expressly stated and described in the specification.

**XIII. PROBLER IS NOT BUT-FOR MATERIAL TO PATENTABILITY OF THE ’172 PATENT**

598. Probler (and information related to the Probler design as a whole) is not but for material to any claim of the ’172 patent for the reasons set forth above. I incorporate my analysis of claims 1, 2, 3, 4, 5, 10, 11, 12, and 14 over Probler here by reference.

**A. Dr. Rockstraw Misinterprets the Claims, the Prosecution History, and the IPR**

599. As explained above and incorporated by reference here, independent claims 1 and 10, and all their dependent claims, require a two-part mixing chamber having to separate pieces.

600. As also explained above and below, and incorporated here independent claims 1, 7, and 10, and all their dependent claims, require a mixing chamber having a cylindrical side wall to its dispensing orifice. Because they claims require a *cylindrical* mixing chamber throughout, non-circular orifices are not within the broadest reasonable interpretation of the

claims. A person of skill in the art would not understand “equivalent diameters” of non-circular orifices as meeting the claim limitations.

601. I have reviewed Dr. Rockstraw’s opinions (¶¶ 1075-1086, 1131-1136) regarding the prosecution history of the ’172 patent, and I disagree with many of his characterizations and conclusions regarding the prosecution history, materiality of references, and statements by the examiner.

602. First, Dr. Rockstraw alleges that “the applicant told the PTO that Sinders was relevant prior art that teaches the claimed plural component spray gun.” Rockstraw Op. Rpt. ¶ 1075. To the contrary, as noted in the section of the prosecution history cited by Dr. Rockstraw, the applicants expressly stated that “Sinders does not disclose, teach or suggest Applicant’s claimed new and non-obvious improvements,” including “original claims 1-7,” as well as other original and new claims. GRACO\_0000050 (’172 patent file history) at GRACO\_0000111. Thus, the Applicant expressly disagreed with the allegation that Sinders teaches the claimed plural component spray gun. Indeed, the Applicant specifically identified the two-part design as a key distinguishing feature from Sinders. *Id.*

603. Dr. Rockstraw next contends that the “patentees failed to inform the examiner that the Probler spray foam gun on which the Sinders patent and Asserted Patent were based already disclosed a ‘two part’ mixing and dispensing element.” Rockstraw Op. Rpt. ¶ 1075. Again, for the reasons described above, the original Probler gun does not disclose, use, or suggest a “two part” mixing chamber as is claimed in the ’172 patent. Instead, the Probler discloses the conventional approach of having a single part mixing chamber as was common in the art prior to the invention of the ’172 patent.

604. Dr. Rockstraw's mischaracterization of the prior art and prosecution history continues over the next several paragraphs, where Dr. Rockstraw again accuses the patentees of failing to disclose the alleged "two part" design of the Probler. *See* Rockstraw Op. Rpt. ¶¶ 1076-1079. As noted above, the Probler lacks this key distinguishing feature, and thus in my opinion would not have been material to the patentability of the claims (and this remains the case regardless of what "dimension" or "ratios" are taught by the Probler design). The same is true of Dr. Rockstraw's commentary regarding the "tangent" limitations discussed during prosecution. The teaching of "tangent" in the prior art was already present before the examiner – e.g., Probst, cited in an Information Disclosure Statement (GRACO\_0000050 ('172 patent file history) at GRACO\_0000060) submitted by the patentees during prosecution, describes the Probler design and explains the conventional tangent approach to mixing chamber design. Probst at 5:59-6:7. Thus, again, any allegation that the patentee withheld information regarding "tangent" designs is belied by the record evidence and prior art considered by the patent office.

605. It is much the same with Dr. Rockstraw's commentary regarding the Zittel declaration, which I understand was submitted in connection with the IPR proceedings against the '172 patent. *See* Rockstraw Op. Rpt. ¶¶ 1084-1086. Mr. Zittel stated that "such mixing chamber elements were commonly implemented as a one-piece element," when discussing the Probler and other prior art designs. IPR2022-00635, Ex. 2001 ¶ 38, GRACO\_0934947 at GRACO\_0934971-72. I agree with Mr. Zittel. The Probler had a "one-piece element," as was common with spray guns common in the art at the time. To the extent Dr. Rockstraw is stating that the Probler was a two-part design, I disagree for the reasons set forth above regarding the difference in two- and one-part approaches.

606. For all these reasons, it is my opinion that the prosecution history (and other information discussed above) supports my conclusion that the Probler (and information related thereto that was allegedly withheld from the patent office) would not have been material to the patentability of the '172 patent. Likewise, for the same reasons, the Probler mixing chamber design of a single piece would have been cumulative of the other art before the patent office (e.g., Probst and Sinders).

607. Dr. Rockstraw also misconstrues the statements made by Mr. Sinders in his declaration, submitted during prosecution of the '172 patent, and Ms. Rea characterizes these statements as false statements to the patent office. *See* Rockstraw Op. Rpt. ¶¶ 1080-1082; Rea Op. Rpt. ¶¶ 169-175. Although asked by the patent office to provide information regarding unexpected results, Mr. Sinders' declaration instead addressed the "essential" elements of the design. I understand from discussion with Drew Hirshfeld that material which is "essential" and "unexpected results" are two different issues entirely. Mr. Sinders appears to be discussing the former, rather than the latter, in his declaration. GRACO\_0000050 ('172 patent file history) at GRACO\_0000201-09.

608. This is further supported by a review of the file history as a whole and the context of Mr. Sinders' statements to the patent office in his declaration. Prior to submission of his declaration, the patent office had relied on various combinations of the Sinders patent (with a one-part mixing chamber) and certain prior art references containing static mixers (e.g., the Mansfield and Frazier references). In a static mixer, the mixing of plural components is accomplished by the presence of an obstruction, usually in the form of a corkscrew or similar element. *See* CCM\_00005453 (Frazier) at 1:45-67, Figs. 1A, 1B & 5; CCM\_00004632 (Mansfield) at 8:12-38, Fig. 4. In such designs, the specific manner and dimensions by which

the two components are introduced is of less importance to the overall mixing. By contrast, in designs that do not include a static mixer (such as the Probler and the P2), the specific position and design of the admission passages, and the relationship of those passages to the mixing chamber and outlet size is of greater importance. In such designs, one must rely on the geometry of the admission passages and mixing chambers to achieve proper mixing.

609. Given this context, Mr. Sinders' description of the "essential" nature of the dimensions and ratios is better understood. Those features are "essential" when designing a non-static mixer, whereas in a static mixer design they are of less importance. I note that Mr. Sinders does not describe any of these elements as providing unexpected results in comparison to the prior art or otherwise enhancing the results of the prior art, only that they are essential when using the kind of "unobstructed" approach discussed by the '172 patent.

**B. Probler is not material to Claim 7.**

610. Probler does not anticipate or render obvious any claim of the '172 patent, as discussed above. Probler also does not anticipate or render obvious claim 7, which I understand Graco disclaimed during an inter partes review.

1. **[7b] a forward portion, of lesser diameter than the rearward portion, forming the spraying orifice,**

611. Probler does not disclose or render obvious "a forward portion, of lesser diameter than the rearward portion, forming the spraying orifice," and therefore Probler is not material to this claim.

612. [REDACTED]

[REDACTED]

[REDACTED]

613. As explained above and incorporated here, pattern augmentation spray tips are not part of the mixing chamber and thus the Probler flat tips are not a “forward portion” of the mixing chamber having a lesser diameter than a “rearward portion.” A person of skill in the art would understand they are entirely separate and distinct from the mixing chamber. Additionally, as also explained above, Probler flat tips are not cylindrical and thus do not have a “cylindrical sidewall” as required by the claim. *See* ’172 patent, claim 7 (element labeled by Dr. Rockstraw as “Preamble 7.3” requiring a “mixing chamber ... with a cylindrical sidewall”). [REDACTED]

[REDACTED]

[REDACTED]. Given the requirement that the mixing chamber be “cylindrical” I further disagree with Dr. Rockstraw (at ¶ 1106) that the broadest reasonable interpretation of the claims would encompass non-diameter measurements, such as “equivalent” measurements used for flat tip orifices, as within the scope of the claim.

614. This limitation mirrors similar limitations in claims 4 and 10. I incorporate my analysis of those claims here by reference.

615. Because nothing Dr. Rockstraw points to as evidence of Probler disclosing this limitation, Probler does not anticipate claim 7 or render the claim 7 obvious, and thus was not material to prosecution of the ’172 patent.

616. For all the reasons discussed above, it is my opinion that the prosecution history (and other information discussed above) supports my conclusion that the Probler would not have been material to the patentability of the ’172 patent.

#### **XIV. CONCLUSION**

617. I currently hold the opinions propounded in this report. However, my analysis is continuing, and I understand that discovery is ongoing in certain respects. As my study of the case continues, I may acquire additional information and/or attain supplemental insights that

result in added observations. I thus reserve the right to supplement my report and to rely on additional documents and testimony that come to my attention between now and the time of the trial. Moreover, I may make additions, deletions or modifications in the future that would be reflected in my trial testimony. I also reserve the right to rely on all other expert reports submitted in this case. For trial, I may prepare diagrams, charts and demonstrations that illustrate the issues presented. I also understand that I may be asked to give rebuttal testimony at trial on matters not covered in this report.